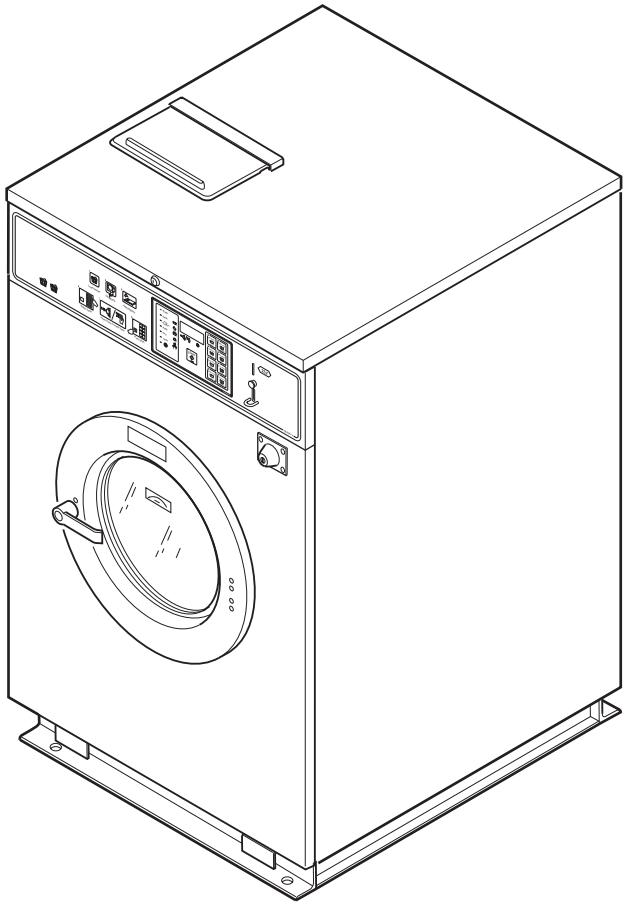
Washer-Extractor

Cabinet Hardmount
A and B-Control

Refer to Page 8 for Model Numbers

Troubleshooting



CHM1760C

Alliance Laundry Systems

www.comlaundry.com

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Section 1
Safety Information

Throughout this manual and on machine decals, you will find precautionary statements ("CAUTION," "WARNING," and "DANGER") followed by specific instructions. These precautions are intended for the personal safety of the operator, user, servicer and those maintaining the machine.

⚠ DANGER

Danger indicates the presence of a hazard that **will** cause **severe** personal injury, death or substantial property damage if the danger is ignored.

⚠ WARNING

Warning indicates the presence of a hazard that **can** cause **severe** personal injury, death or substantial property damage if the warning is ignored.

⚠ CAUTION

Caution indicates the presence of a hazard that **will** or **can** cause **minor** personal injury or property damage if the caution is ignored.

Additional precautionary statements ("IMPORTANT" and "NOTE") are followed by specific instructions.

IMPORTANT

The word "IMPORTANT" is used to inform the reader of specific procedures where minor machine damage will occur if the procedure is not followed.

NOTE

The word "NOTE" is used to communicate installation, operation, maintenance or servicing information that is important but not hazard related.

General Safety Precautions

In the interest of safety, some general precautions relating to the operation of this machine follow.

WARNING

- **Failure to install, maintain, and/or operate this product according to the manufacturer's instructions may result in conditions which can produce serious injury, death and/or property damage.**
- **Do not repair or replace any part of the product or attempt any servicing unless specifically recommended or published in this Service Manual and that you understand and have the skills to carry out.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the product is properly grounded and to reduce the risk of fire, electric shock, serious injury, or death.**

W006R1

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer-extractor before servicing.**
- **Never start the washer-extractor with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer-extractor is properly grounded.**

W460

WARNING

Repairs that are made to your products by unqualified persons can result in hazards due to improper assembly or adjustments subjecting you, or the inexperienced person making such repairs, to the risk of serious injury, electrical shock, or death.

W007

WARNING

If you or an unqualified person perform service on your product, you must assume the responsibility for any personal injury or property damage which may result. The manufacturer will not be responsible for any injury or property damage arising from improper service and/or service procedures.

W008

Always contact your dealer, distributor, service agent or the manufacturer about any problems or conditions you do not understand.

Important Safety Instructions

WARNING

To reduce the risk of fire, electric shock, serious injury or death to persons when using your washer, follow these basic precautions:

W023E

1. Read all instructions before using the washer.
2. Refer to the GROUNDING INSTRUCTIONS in the INSTALLATION manual (supplied with your washer-extractor) for the proper grounding of the washer-extractor.
3. Do not wash textiles that have been previously cleaned in, washed in, soaked in or spotted with gasoline, kerosene, waxes, cooking oils, dry-cleaning solvents or other flammable or explosive substances. They give off vapors that could ignite or explode.
4. Do not add gasoline, dry-cleaning solvents or other flammable or explosive substances to the wash water. These substances give off vapors that could ignite or explode.
5. Under certain conditions, hydrogen gas may be produced in a hot water system that has not been used for two weeks or more. HYDROGEN GAS IS EXPLOSIVE. If the hot water system has not been used for such a period, before using a washer-extractor, turn on all hot water faucets and let the water flow from each for several minutes. This will release any accumulated hydrogen gas. The gas is flammable. Do not smoke or use an open flame during this time.

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6. Do not allow children to play on or in a washer. Close supervision of children is necessary when the washer is used near children.
7. Before the washer is removed from service or discarded, remove the door to the washing compartment.
8. Do not reach into the washer if the wash drum is moving.
9. Do not install or store the washer where it will be exposed to water and/or weather.
10. Do not tamper with the controls.
11. Do not repair or replace any part of the washer or attempt any servicing unless specifically recommended in the user-maintenance instructions or in published user-repair instructions that the user understands and has the skills to carry out.
12. To reduce the risk of an electrical shock or fire, DO NOT use an extension cord or an adapter to connect the washer to an electrical power source.
13. Use the washer only for its intended purpose, washing clothes.
14. Never wash machine parts or automotive parts in the machine. This could result in serious damage to the basket.
15. ALWAYS disconnect the washer from its electrical supply before attempting any service.
16. Install the washer according to the INSTALLATION INSTRUCTIONS. All connections for water, drain, electrical power and grounding must comply with local codes and, when required, be made by licensed personnel.
17. To reduce the risk of fire, textiles which have traces of any flammable substances such as vegetable oil, cooking oil, machine oil, flammable chemicals, thinner, etc. or anything containing wax or chemicals such as in mops or cleaning cloths, must not be put into the washer. These flammable substances may cause the fabric to ignite.
18. Do not use fabric softeners or products to eliminate static unless recommended by the manufacturer of the fabric softener or product.
19. Keep the washer in good condition. Bumping or dropping the washer can damage its safety features. If this occurs, have the washer checked by a qualified service person.
20. If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.
21. Be sure that water connections have a shut-off valve and that fill hose connections are tight. CLOSE the shut-off valves at the end of each wash day.
22. The loading door MUST BE CLOSED any time the washer is to fill, tumble or spin. DO NOT bypass the loading door switch and permit the washer to operate with the loading door open.
23. Always read and follow the manufacturer’s instructions on packages of laundry and cleaning aids. Heed all warnings and precautions. To reduce the risk of poisoning or chemical burns, keep them out of the reach of children at all times (preferably in a locked cabinet).
24. Always follow the fabric care instructions supplied by the textile manufacturer.
25. Never operate the washer with any guards and/or panels removed.
26. DO NOT operate the washer with missing or broken parts.
27. DO NOT bypass any safety devices.
28. Failure to install, maintain and/or operate this washer according to the manufacturer's instructions may result in conditions that can produce bodily injury and/or property damage.

NOTE: The WARNING and IMPORTANT SAFETY INSTRUCTIONS appearing in this manual are not meant to cover all possible conditions and situations that may occur. Common sense, caution and care must be exercised when installing, maintaining and operating the washer-extractor.

Any problems or conditions not understood should be reported to the dealer, distributor, service agent or the manufacturer.

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WARNING

This machine must be installed, adjusted, and serviced by qualified electrical maintenance personnel familiar with the construction and operation of this type of machinery. They must also be familiar with the potential hazards involved. Failure to observe this warning may result in personal injury and/or equipment damage, and may void the warranty.

SW004

IMPORTANT: Ensure that the recommended clearances for inspection and maintenance are provided. Never allow the inspection and maintenance space to be blocked.

WARNING

Install the machine on a level floor of sufficient strength. Failure to do so may result in conditions which can produce serious injury, death and/or property damage.

W703

CAUTION

Be careful around the open door, particularly when loading from a level below the door. Impact with door edges can cause personal injury.

SW025

WARNING

Never touch internal or external steam pipes, connections, or components. These surfaces can be extremely hot and will cause severe burns. The steam must be turned off and the pipe, connections, and components allowed to cool before the pipe can be touched.

SW014

Safety Decals

Safety decals appear at crucial locations on the machine. Failure to maintain legible safety decals could result in injury to the operator or service technician.

To provide personal safety and keep the machine in proper working order, follow all maintenance and safety procedures presented in this manual. If questions regarding safety arise, contact the manufacturer immediately.

Use manufacturer-authorized spare parts to avoid safety hazards.

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Operator Safety

WARNING

NEVER insert hands or objects into basket until it has completely stopped. Doing so could result in serious injury.

SW012

To ensure the safety of machine operators, the following maintenance checks must be performed daily:

1. Prior to operating the machine, verify that all warning signs are present and legible. Missing or illegible signs must be replaced immediately. Make certain that spares are available.
2. Check door interlock before starting operation of the machine:
   a. Attempt to start the machine with the door open. The machine should not start with the door open.
   b. Close the door without locking it and attempt to start the machine. The machine should not start with the door unlocked.
   c. Close and lock the door and start a cycle. Attempt to open the door while the cycle is in progress. The door should not open.

   If the door lock and interlock are not functioning properly, call a service technician.
3. Do not attempt to operate the machine if any of the following conditions are present:
   a. The door does not remain securely locked during the entire cycle.
   b. Excessively high water level is evident.
   c. Machine is not connected to a properly grounded circuit.

Do not bypass any safety devices in the machine.

WARNING

Never operate the machine with a bypassed or disconnected balance system. Operating the machine with severe out-of-balance loads could result in personal injury and serious equipment damage.

SW039

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Section 2
Introduction

Customer Service

Alliance Laundry Systems is not responsible for personal injury or property damage resulting from improper service. Review all service information before beginning repairs.

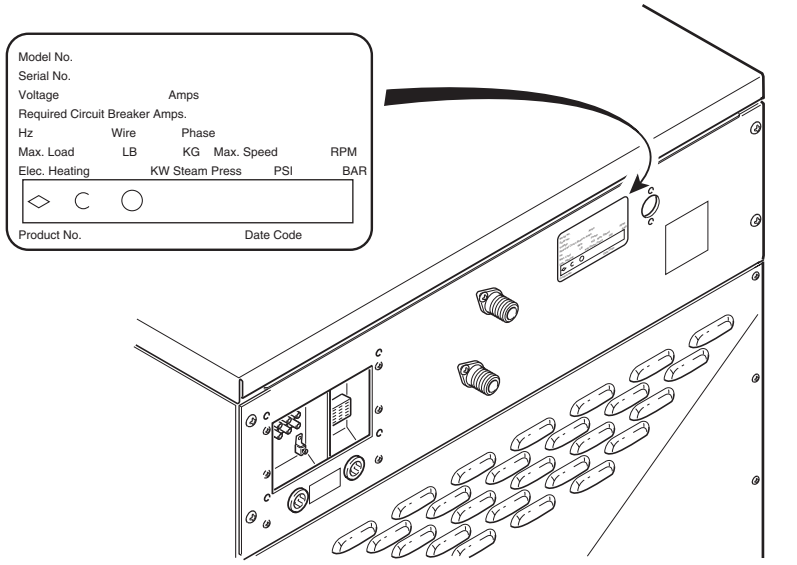
If literature or replacement parts are required, contact the source from whom the machine was purchased or contact Alliance Laundry Systems at (920) 748-3950 for the name of the nearest authorized parts distributor.

For technical assistance, call the following number:

Ripon, Wisconsin U.S.A.
(920) 748-3121

Nameplate Location

When calling or writing about your product, be sure to mention model and serial numbers. Model and serial numbers are located on nameplate(s) as shown.



CHM2411P

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Model Identification

Information in this manual is applicable to these washer-extractors.

DC20AC2	HC40AY2	HC80BLV	SC30BX2	SC60BLF
DC30AC2	HC40BC2	HC80BNV	SC30BY2	SC60BN2
DC40AC2	HC40BL2	HC80BXV	SC40AC2	SC60BNF
DC60AC2	HC40BN2	HC80BYV	SC40ACV	SC60BX2
HC20AC2	HC40BX2	HC125BCV	SC40AL2	SC60BXF
HC20ACV	HC40BY2	HC125BYV	SC40AN2	SC60BY2
HC20AL2	HC50BC2	SC20AC2	SC40ANV	SC60BYF
HC20AX2	HC50BL2	SC20AL2	SC40AX2	SC80ACV
HC20AY2	HC50BN2	SC20ACV	SC40AY2	SC80ALV
HC20BC2	HC50BX2	SC20AN2	SC40AYV	SC80ANV
HC20BL2	HC50BY2	SC20AX2	SC40BC2	SC80AXV
HC20BN2	HC60AC2	SC20AY2	SC40BL2	SC80AYV
HC20BX2	HC60ACF	SC20AYV	SC40BN2	SC80BCV
HC20BY2	HC60ACV	SC20BC2	SC40BX2	SC80BLV
HC25AC2	HC60AL2	SC20BL2	SC40BY2	SC80BNV
HC25AL2	HC60ALF	SC20BN2	SC50BC2	SC80BXV
HC25AX2	HC60AX2	SC20BX2	SC50BL2	SC80BYV
HC25AY2	HC60AXF	SC20BY2	SC50BN2	SC125ANV
HC25BC2	HC60AY2	SC25AC2	SC50BX2	SC125BYV
HC25BL2	HC60AYF	SC25AL2	SC50BY2	UC20AN2
HC25BX2	HC60BC2	SC25AX2	SC60AC2	UC20BN2
HC25BY2	HC60BCF	SC25AY2	SC60ACF	UC30AN2
HC30AC2	HC60BL2	SC25BC2	SC60ACV	UC30BN2
HC30ACV	HC60BLF	SC25BL2	SC60AL2	UC40AN2
HC30AL2	HC60BN2	SC25BX2	SC60ALF	UC40ANV
HC30AX2	HC60BNF	SC25BY2	SC60AN2	UC40BN2
HC30AY2	HC60BX2	SC30AC2	SC60ANF	UC50BN2
HC30BC2	HC60BXF	SC30ACV	SC60ANV	UC60AN2
HC30BL2	HC60BY2	SC30AL2	SC60AX2	UC60ANV
HC30BN2	HC60BYF	SC30AN2	SC60AXF	UC60BN2
HC30BX2	HC80ACV	SC30AX2	SC60AY2	UC60BNF
HC30BY2	HC80ALV	SC30AY2	SC60AYF	UC80ANV
HC40AC2	HC80ANV	SC30AYV	SC60AYV	UC80BNV
HC40ACV	HC80AXV	SC30BC2	SC60BC2	UC125ANV
HC40AL2	HC80AYV	SC30BL2	SC60BCF	
HC40AX2	HC80BCV	SC30BN2	SC60BL2	

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Section 3
Theory of Operation

Starting the Machine

The door lock will not allow a cycle to be started until the door has been closed.

Fill

The operator selects a cycle and starts the machine. Water enters the machine through water valves that are controlled by the microcomputer. As water fills the basket, a column of air is trapped in a pressure bulb and hose. The air pressure continues to increase as the basket fills with water. When the desired water level is reached, the water level switch triggers the microcomputer and the water valves turn off.

A vacuum breaker installed in the inlet plumbing prevents the backflow of water.

Supply

The operator can either connect external liquid supplies to the machine or fill the supply dispenser with liquid or dry supplies. The supply dispenser's nozzles flush the compartments with water at the appropriate times throughout a cycle.

Wash

The basket includes ribs that lift the laundry from the wash water. The laundry then tumbles back into the bath.

In 2-speed and variable-speed models, 1 dual-speed motor drives the basket's shaft with a V-belt. In 3-speed models, 2 motors drive the basket's cylinder with a V-belt.

18-60 pound capacity models use 2 bearings that are held in place by a single cast-iron trunnion that is bolted to the frame. 80 and 125-pound capacity models use 2 flange-type bearing that are bolted to the frame.

Drain

Cabinet Hardmount washer-extractors use a normally open gravity-type drain system. No pump is used. When the drain valve opens, the perforated basket allows water to drain from it.

In the event of a power failure, the drain valve will open automatically and the machine will drain.

Extract

A final high-speed extract step removes water from the load, which maximizes drying efficiency.

The door lock system will not allow the door to be opened until the cycle has finished.

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Section 4
Troubleshooting

WARNING

To reduce the risk of electrical shock, fire, explosion, serious injury or death:
- **Disconnect electrical power to the washer-extractor before servicing it.**
- **Close the gas shut-off valve to the washer-extractor (when applicable) before servicing it.**
- **Never start the washer-extractor with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer-extractor is properly grounded.**

W461R1

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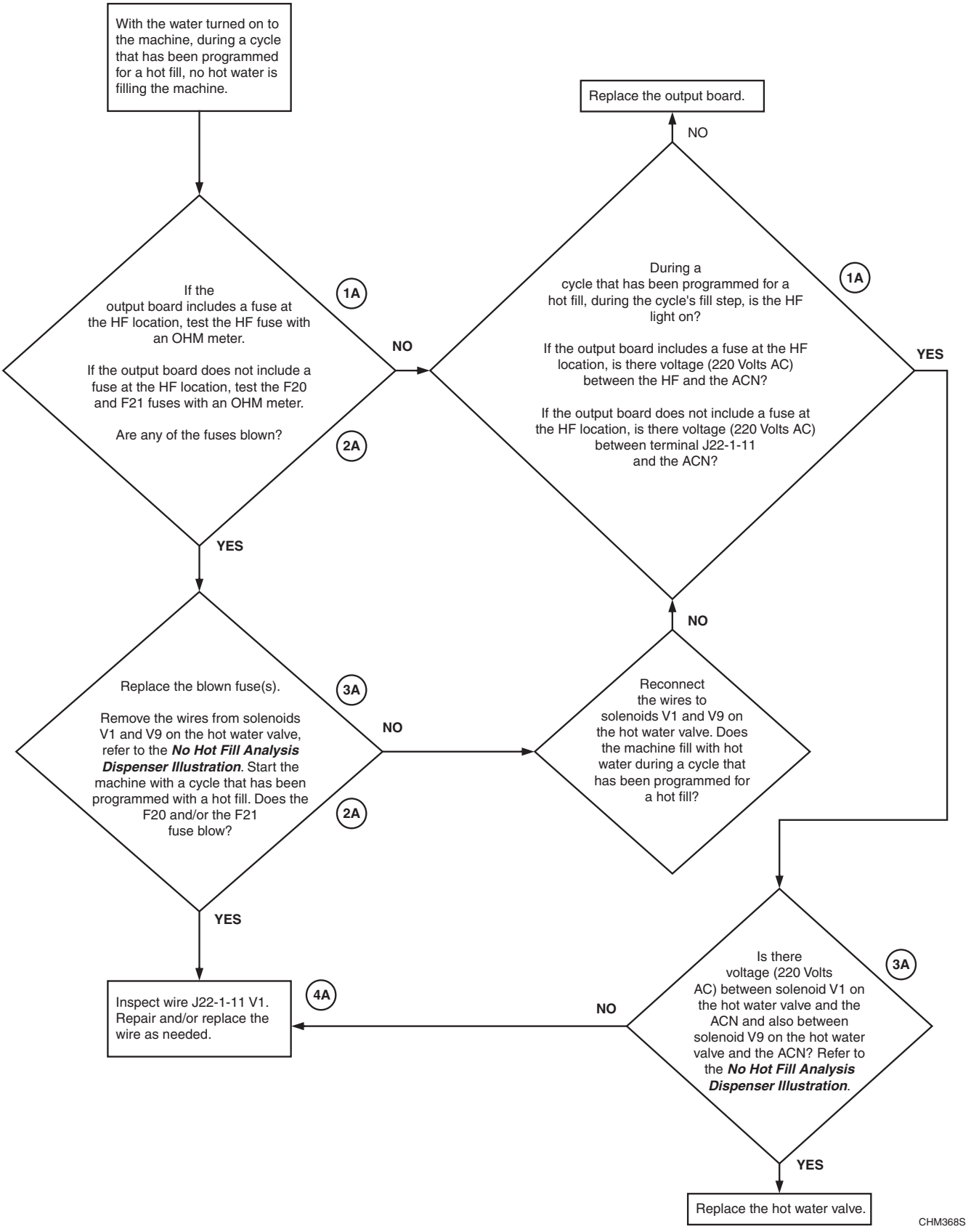
1. No Hot Fill Analysis


With the water turned on to the machine, during a cycle that has been programmed for a hot fill, no hot water is filling the machine.
If the output board includes a fuse at the HF location, test the HF fuse with an OHM meter.
If the output board does not include a fuse at the HF location, test the F20 and F21 fuses with an OHM meter.
Are any of the fuses blown?
1A
2A
NO
YES
During a cycle that has been programmed for a hot fill, during the cycle's fill step, is the HF light on?
If the output board includes a fuse at the HF location, is there voltage (220 Volts AC) between the HF and the ACN?
If the output board does not include a fuse at the HF location, is there voltage (220 Volts AC) between terminal J22-1-11 and the ACN?
1A
NO
YES
Replace the output board.
Replace the blown fuse(s).
Remove the wires from solenoids V1 and V9 on the hot water valve, refer to the No Hot Fill Analysis Dispenser Illustration. Start the machine with a cycle that has been programmed with a hot fill. Does the F20 and/or the F21 fuse blow?
3A
2A
NO
YES
Reconnect the wires to solenoids V1 and V9 on the hot water valve. Does the machine fill with hot water during a cycle that has been programmed for a hot fill?
NO
Inspect wire J22-1-11 V1. Repair and/or replace the wire as needed.
4A
Is there voltage (220 Volts AC) between solenoid V1 on the hot water valve and the ACN and also between solenoid V9 on the hot water valve and the ACN? Refer to the No Hot Fill Analysis Dispenser Illustration.
3A
NO
YES
Replace the hot water valve.
CHM368S

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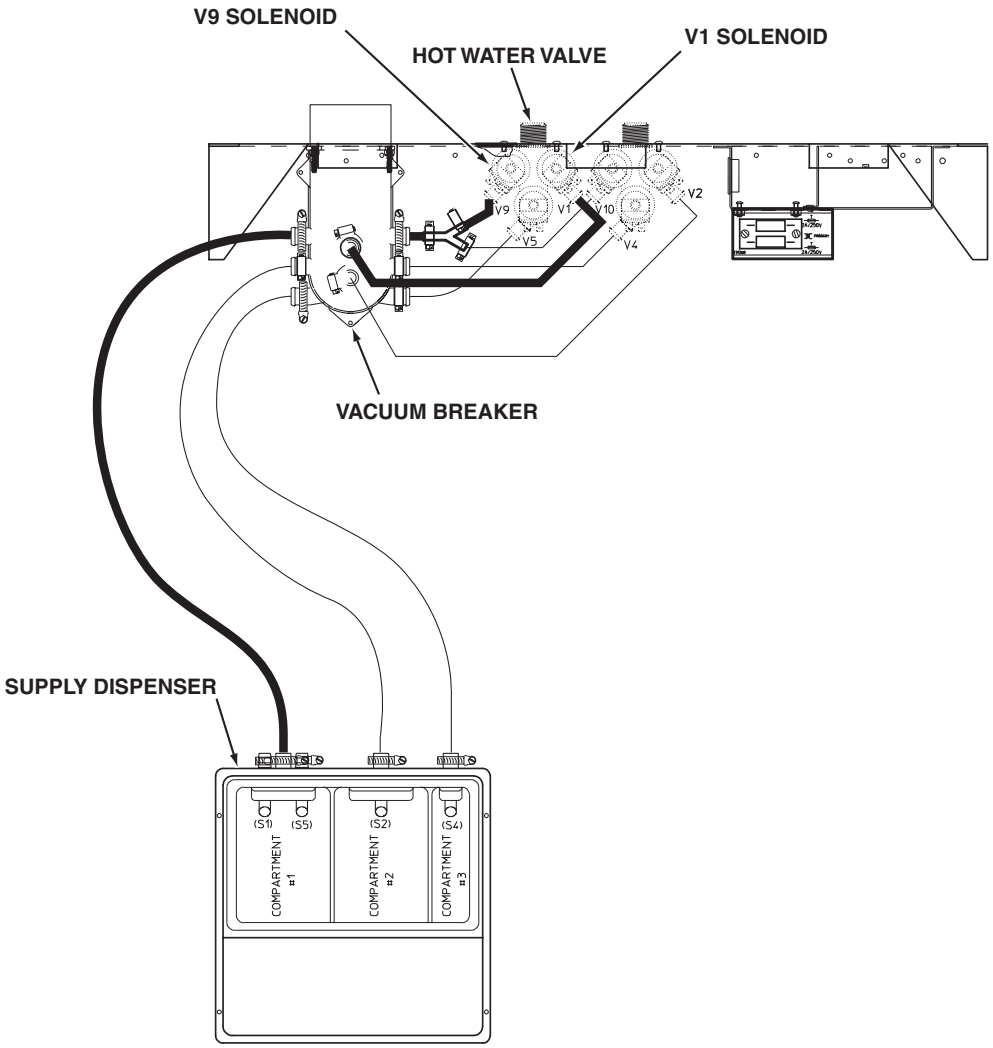
No Hot Fill Analysis Dispenser Illustration



CHM370S

Please refer to the following 2 pages for wiring diagram information.

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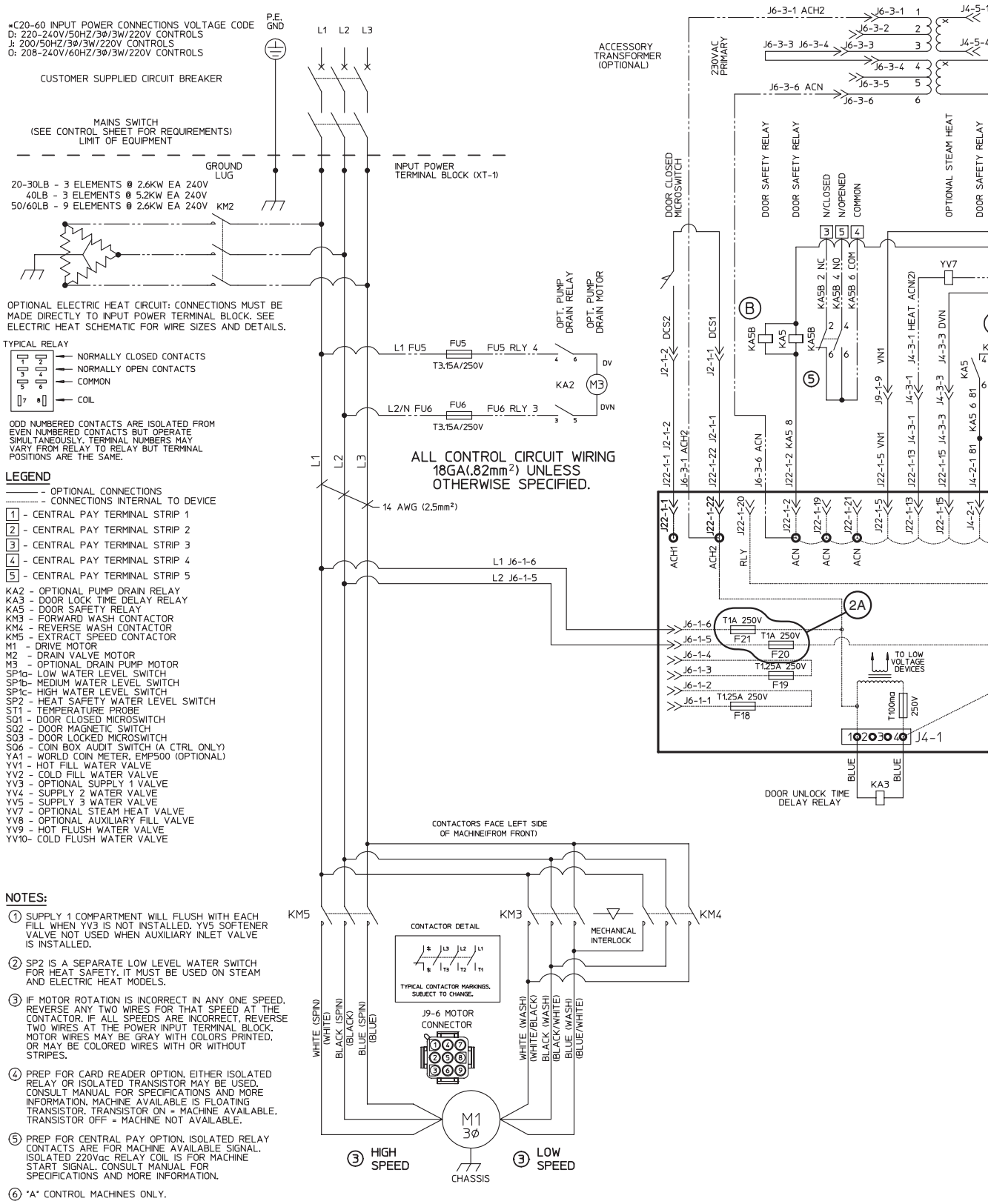
No Hot Fill Analysis (Sheet 1 of 2)


*C20-60 INPUT POWER CONNECTIONS VOLTAGE CODE
D: 220-240V/50HZ/3Ø/3W/220V CONTROLS
J: 200/50HZ/3Ø/3W/220V CONTROLS
O: 208-240V/60HZ/3Ø/3W/220V CONTROLS
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH
(SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
GROUND LUG
INPUT POWER TERMINAL BLOCK (XT-1)
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50/60LB - 9 ELEMENTS @ 2.6KW EA 240V KM2
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK. SEE ELECTRIC HEAT SCHEMATIC FOR WIRE SIZES AND DETAILS.
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
LEGEND
- OPTIONAL CONNECTIONS
- CONNECTIONS INTERNAL TO DEVICE
1 - CENTRAL PAY TERMINAL STRIP 1
2 - CENTRAL PAY TERMINAL STRIP 2
3 - CENTRAL PAY TERMINAL STRIP 3
4 - CENTRAL PAY TERMINAL STRIP 4
5 - CENTRAL PAY TERMINAL STRIP 5
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - DOOR LOCK TIME DELAY RELAY
KA5 - DOOR SAFETY RELAY
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- LOW WATER LEVEL SWITCH
SP1b- MEDIUM WATER LEVEL SWITCH
SP1c- HIGH WATER LEVEL SWITCH
SP2 - HEAT SAFETY WATER LEVEL SWITCH
ST1 - TEMPERATURE PROBE
SQ1 - DOOR CLOSED MICROSWITCH
SQ2 - DOOR MAGNETIC SWITCH
SQ3 - DOOR LOCKED MICROSWITCH
SQ6 - COIN BOX AUDIT SWITCH (A CTRL ONLY)
YA1 - WORLD COIN METER, EMP500 (OPTIONAL)
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 WATER VALVE
YV5 - SUPPLY 3 WATER VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV8 - OPTIONAL AUXILIARY FILL VALVE
YV9 - HOT FLUSH WATER VALVE
YV10- COLD FLUSH WATER VALVE
ACCESSORY TRANSFORMER (OPTIONAL)
230VAC PRIMARY
J6-3-1 ACH2
J6-3-6 ACN
DOOR CLOSED MICROSWITCH
DOOR SAFETY RELAY
OPTIONAL STEAM HEAT
N/CLOSED
N/OPENED
COMMON
OPT. PUMP DRAIN RELAY
OPT. PUMP DRAIN MOTOR
L1 FU5
FU5
FU5 RLY 4
T3.15A/250V
KA2
M3
L2/N FU6
FU6
FU6 RLY 3
T3.15A/250V
ALL CONTROL CIRCUIT WIRING 18GA(.82mm²) UNLESS OTHERWISE SPECIFIED.
14 AWG (2.5mm²)
L1 J6-1-6
L2 J6-1-5
T1A 250V
F21
F20
T1.25A 250V
F19
F18
TO LOW VOLTAGE DEVICES
T100ma
250V
J4-1
DOOR UNLOCK TIME DELAY RELAY
KA3
BLUE
CONTACTORS FACE LEFT SIDE OF MACHINE(FROM FRONT)
KM5
KM3
KM4
CONTACTOR DETAIL
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
MECHANICAL INTERLOCK
J9-6 MOTOR CONNECTOR
WHITE (SPIN) (WHITE)
BLACK (SPIN) (BLACK)
BLUE (SPIN) (BLUE)
WHITE (WASH) (WHITE/BLACK)
BLACK (WASH) (BLACK/WHITE)
BLUE (WASH) (BLUE/WHITE)
M1 3Ø
③ HIGH SPEED
③ LOW SPEED
CHASSIS
NOTES:
① SUPPLY 1 COMPARTMENT WILL FLUSH WITH EACH FILL WHEN YV3 IS NOT INSTALLED. YV5 SOFTENER VALVE NOT USED WHEN AUXILIARY INLET VALVE IS INSTALLED.
② SP2 IS A SEPARATE LOW LEVEL WATER SWITCH FOR HEAT SAFETY. IT MUST BE USED ON STEAM AND ELECTRIC HEAT MODELS.
③ IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE CONTACTOR. IF ALL SPEEDS ARE INCORRECT, REVERSE TWO WIRES AT THE POWER INPUT TERMINAL BLOCK. MOTOR WIRES MAY BE GRAY WITH COLORS PRINTED, OR MAY BE COLORED WIRES WITH OR WITHOUT STRIPES.
④ PREP FOR CARD READER OPTION. EITHER ISOLATED RELAY OR ISOLATED TRANSISTOR MAY BE USED. CONSULT MANUAL FOR SPECIFICATIONS AND MORE INFORMATION. MACHINE AVAILABLE IS FLOATING TRANSISTOR. TRANSISTOR ON = MACHINE AVAILABLE. TRANSISTOR OFF = MACHINE NOT AVAILABLE.
⑤ PREP FOR CENTRAL PAY OPTION. ISOLATED RELAY CONTACTS ARE FOR MACHINE AVAILABLE SIGNAL. ISOLATED 220Vac RELAY COIL IS FOR MACHINE START SIGNAL. CONSULT MANUAL FOR SPECIFICATIONS AND MORE INFORMATION.
⑥ "A" CONTROL MACHINES ONLY.
⑦ CONNECT J2-5 MALE CONNECTOR TO J2-5B CONNECTOR FOR "A" CONTROL PREP FOR CARD READER MACHINES. CONNECT J2-5A CONNECTOR FOR ALL OTHER VERSIONS.

NOTE: Refer to the wiring diagram supplied with your machine.

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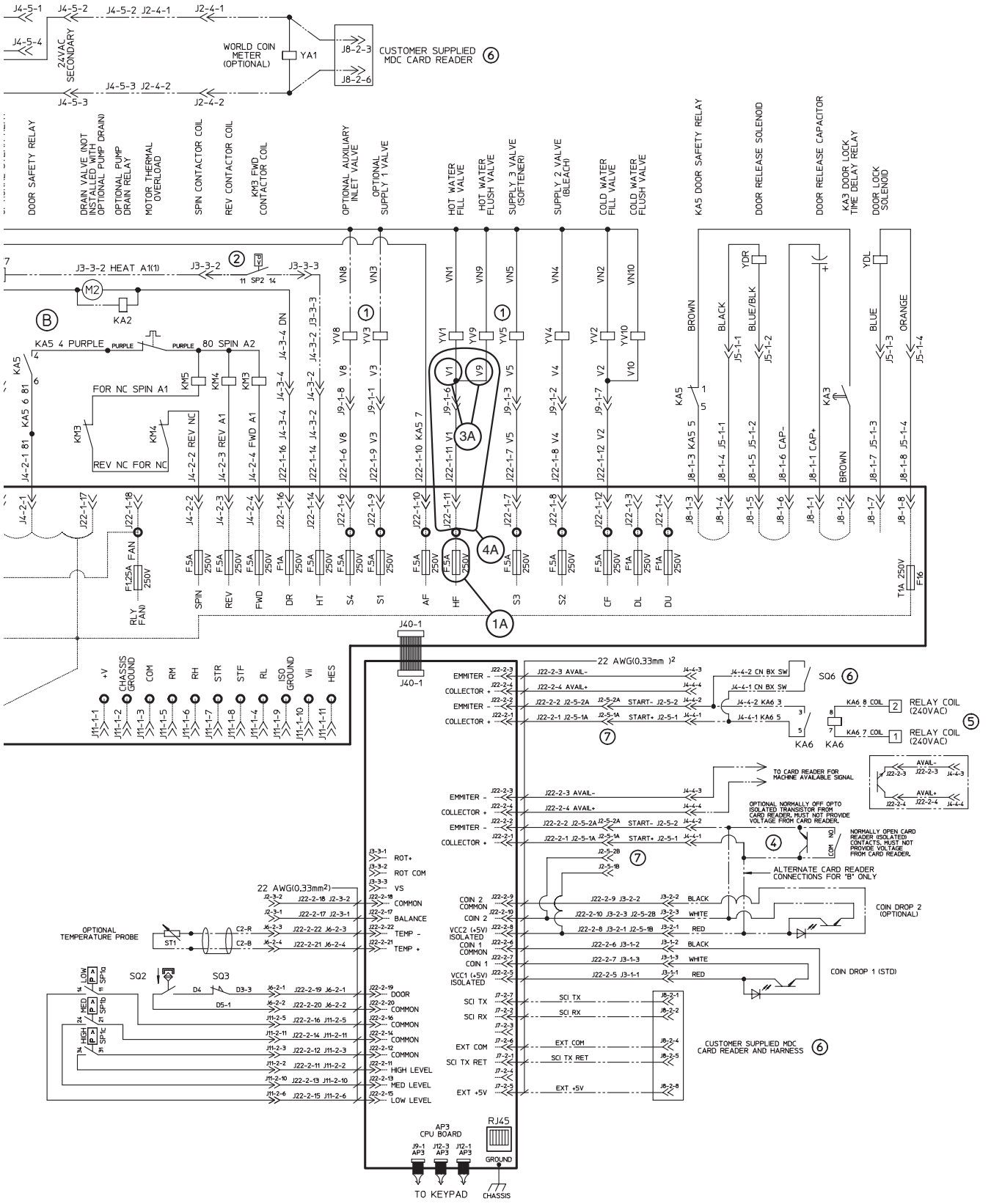
No Hot Fill Analysis (Sheet 2 of 2)


WORLD COIN METER (OPTIONAL)
YA1
CUSTOMER SUPPLIED MDC CARD READER
DOOR SAFETY RELAY
DRAIN VALVE (NOT INSTALLED WITH OPTIONAL PUMP DRAIN)
OPTIONAL PUMP DRAIN RELAY
MOTOR THERMAL OVERLOAD
SPIN CONTACTOR COIL
REV CONTACTOR COIL
KM3 FWD CONTACTOR COIL
OPTIONAL AUXILIARY INLET VALVE
OPTIONAL SUPPLY 1 VALVE
HOT WATER FILL VALVE
HOT WATER FLUSH VALVE
SUPPLY 3 VALVE (SOFTENER)
SUPPLY 2 VALVE (BLEACH)
COLD WATER FILL VALVE
COLD WATER FLUSH VALVE
KA5 DOOR SAFETY RELAY
DOOR RELEASE SOLENOID
DOOR RELEASE CAPACITOR
KA3 DOOR LOCK TIME DELAY RELAY
DOOR LOCK SOLENOID
KA2
KA5 4 PURPLE
80 SPIN A2
FOR NC SPIN A1
REV NC FOR NC
F1.25A FAN 250V
RLY FAN
J40-1
22 AWG(0.33mm)2
TO CARD READER FOR MACHINE AVAILABLE SIGNAL
OPTIONAL NORMALLY OFF OPTO ISOLATED TRANSISTOR FROM CARD READER. MUST NOT PROVIDE VOLTAGE FROM CARD READER.
NORMALLY OPEN CARD READER (ISOLATED) CONTACTS. MUST NOT PROVIDE VOLTAGE FROM CARD READER.
ALTERNATE CARD READER CONNECTIONS FOR "B" ONLY
COIN DROP 2 (OPTIONAL)
COIN DROP 1 (STD)
RELAY COIL (240VAC)
CUSTOMER SUPPLIED MDC CARD READER AND HARNESS
OPTIONAL TEMPERATURE PROBE
AP3 CPU BOARD
TO KEYPAD
CHASSIS
CHM369S

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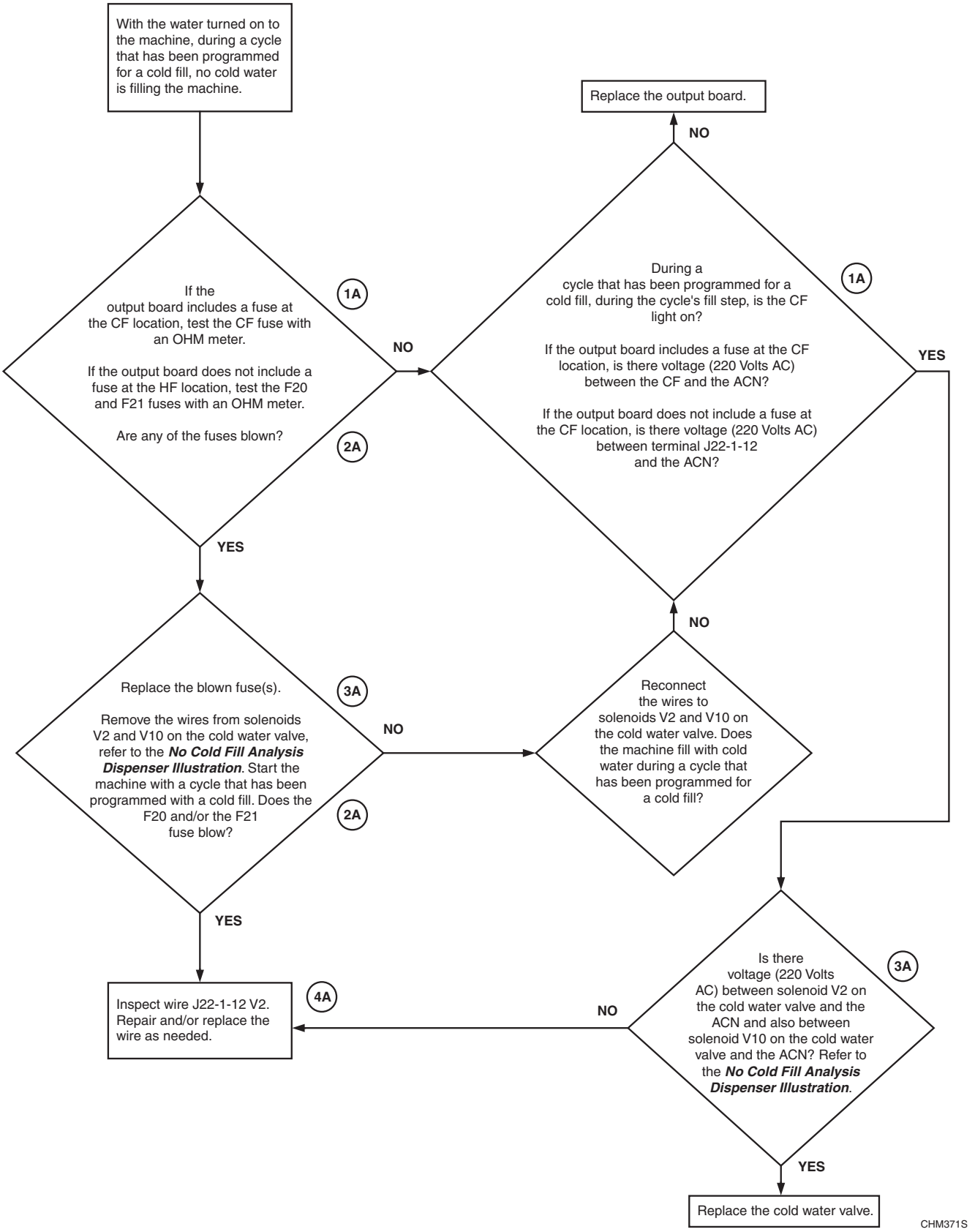
2. No Cold Fill Analysis


With the water turned on to the machine, during a cycle that has been programmed for a cold fill, no cold water is filling the machine.
If the output board includes a fuse at the CF location, test the CF fuse with an OHM meter.
If the output board does not include a fuse at the HF location, test the F20 and F21 fuses with an OHM meter.
Are any of the fuses blown?
1A
2A
NO
YES
During a cycle that has been programmed for a cold fill, during the cycle's fill step, is the CF light on?
If the output board includes a fuse at the CF location, is there voltage (220 Volts AC) between the CF and the ACN?
If the output board does not include a fuse at the CF location, is there voltage (220 Volts AC) between terminal J22-1-12 and the ACN?
1A
YES
NO
Replace the output board.
Replace the blown fuse(s).
Remove the wires from solenoids V2 and V10 on the cold water valve, refer to the No Cold Fill Analysis Dispenser Illustration. Start the machine with a cycle that has been programmed with a cold fill. Does the F20 and/or the F21 fuse blow?
3A
2A
NO
YES
Reconnect the wires to solenoids V2 and V10 on the cold water valve. Does the machine fill with cold water during a cycle that has been programmed for a cold fill?
NO
Is there voltage (220 Volts AC) between solenoid V2 on the cold water valve and the ACN and also between solenoid V10 on the cold water valve and the ACN? Refer to the No Cold Fill Analysis Dispenser Illustration.
3A
NO
YES
Inspect wire J22-1-12 V2. Repair and/or replace the wire as needed.
4A
Replace the cold water valve.
CHM371S

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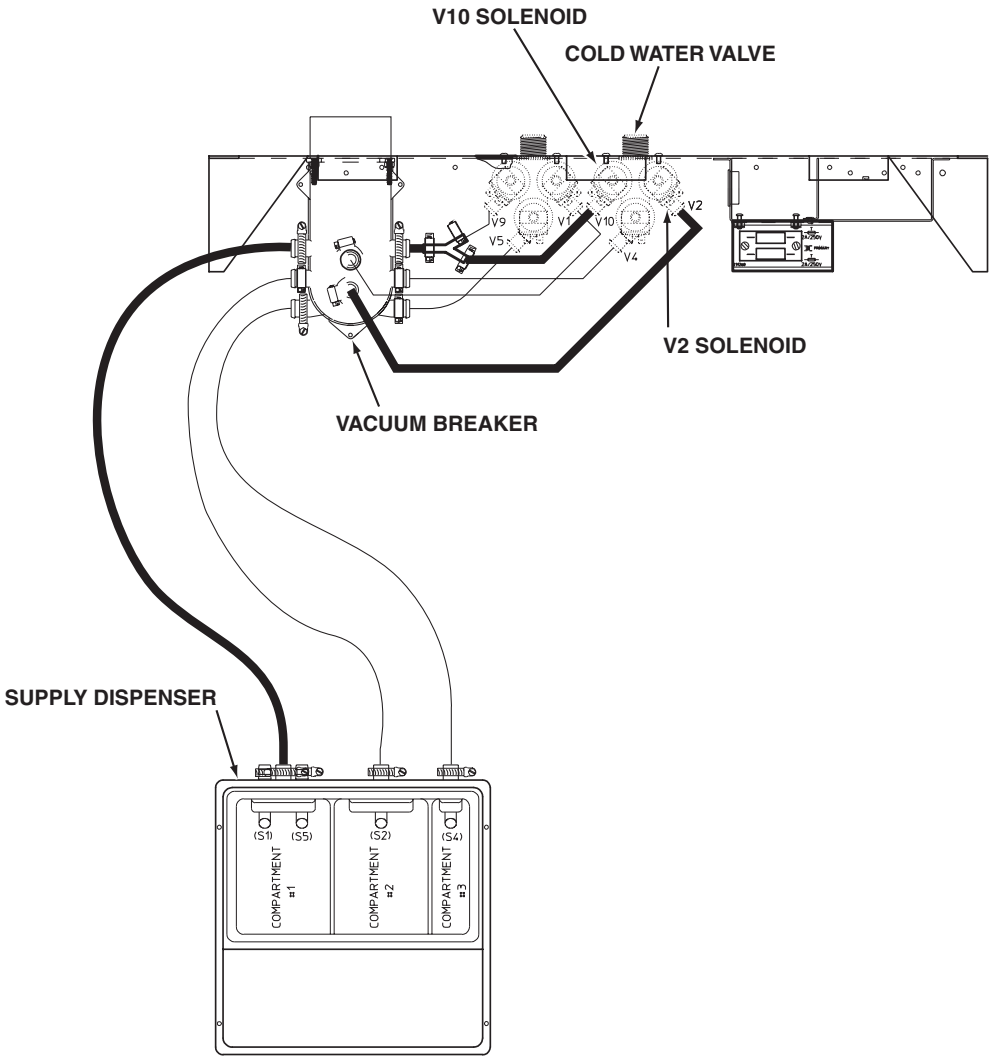
No Cold Fill Analysis Dispenser Illustration



CHM373S

Please refer to the following 2 pages for wiring diagram information.

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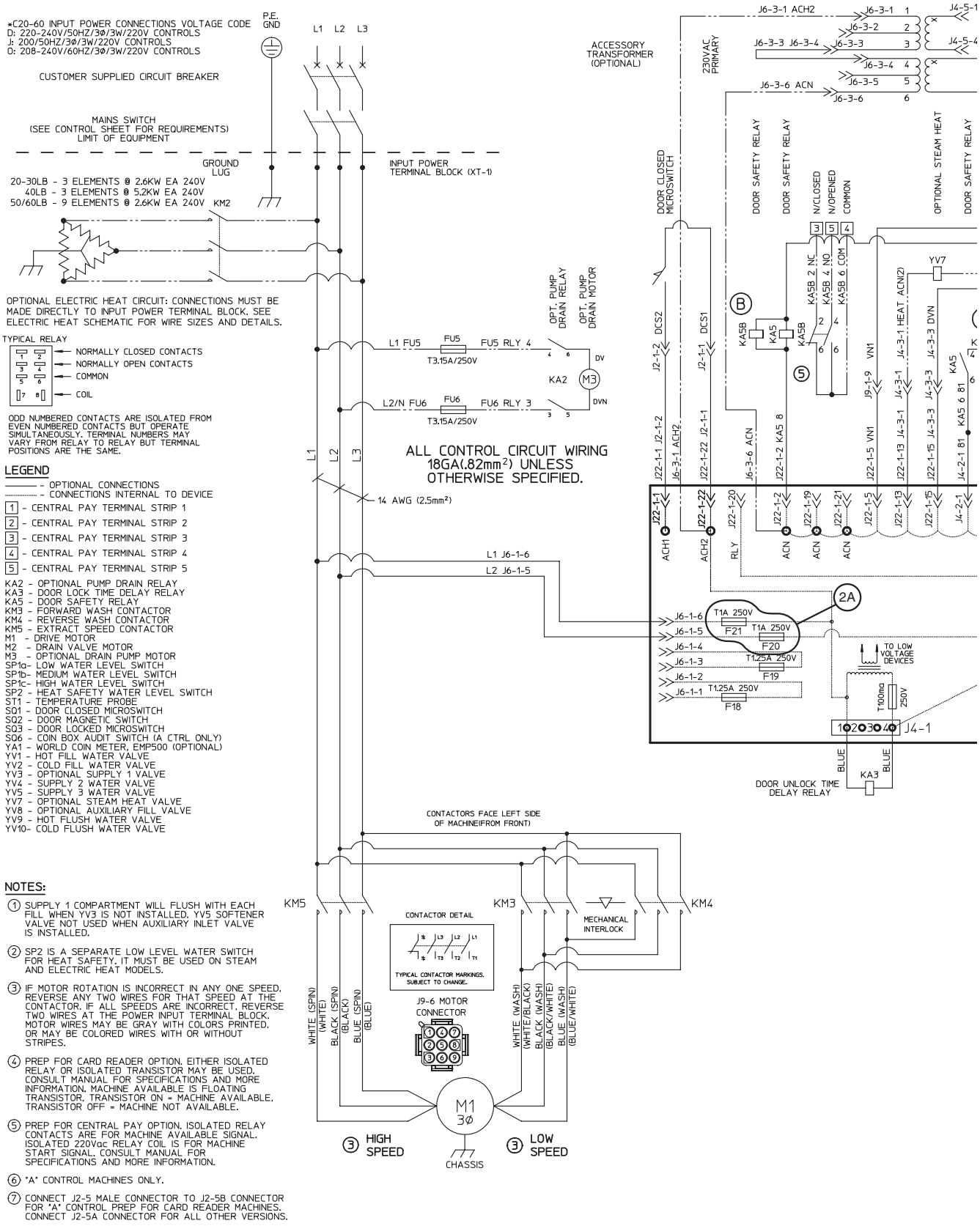
No Cold Fill Analysis (Sheet 1 of 2)


*C20-60 INPUT POWER CONNECTIONS VOLTAGE CODE
D: 220-240V/50HZ/3Ø/3W/220V CONTROLS
J: 200/50HZ/3Ø/3W/220V CONTROLS
O: 208-240V/60HZ/3Ø/3W/220V CONTROLS
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH
(SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
GROUND LUG
INPUT POWER TERMINAL BLOCK (XT-1)
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50/60LB - 9 ELEMENTS @ 2.6KW EA 240V
KM2
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK. SEE ELECTRIC HEAT SCHEMATIC FOR WIRE SIZES AND DETAILS.
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
LEGEND
OPTIONAL CONNECTIONS
CONNECTIONS INTERNAL TO DEVICE
1 - CENTRAL PAY TERMINAL STRIP 1
2 - CENTRAL PAY TERMINAL STRIP 2
3 - CENTRAL PAY TERMINAL STRIP 3
4 - CENTRAL PAY TERMINAL STRIP 4
5 - CENTRAL PAY TERMINAL STRIP 5
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - DOOR LOCK TIME DELAY RELAY
KA5 - DOOR SAFETY RELAY
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- LOW WATER LEVEL SWITCH
SP1b- MEDIUM WATER LEVEL SWITCH
SP1c- HIGH WATER LEVEL SWITCH
SP2 - HEAT SAFETY WATER LEVEL SWITCH
ST1 - TEMPERATURE PROBE
SQ1 - DOOR CLOSED MICROSWITCH
SQ2 - DOOR MAGNETIC SWITCH
SQ3 - DOOR LOCKED MICROSWITCH
SQ6 - COIN BOX AUDIT SWITCH (A CTRL ONLY)
YA1 - WORLD COIN METER, EMP500 (OPTIONAL)
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 WATER VALVE
YV5 - SUPPLY 3 WATER VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV8 - OPTIONAL AUXILIARY FILL VALVE
YV9 - HOT FLUSH WATER VALVE
YV10- COLD FLUSH WATER VALVE
NOTES:
1 SUPPLY 1 COMPARTMENT WILL FLUSH WITH EACH FILL WHEN YV3 IS NOT INSTALLED. YV5 SOFTENER VALVE NOT USED WHEN AUXILIARY INLET VALVE IS INSTALLED.
2 SP2 IS A SEPARATE LOW LEVEL WATER SWITCH FOR HEAT SAFETY. IT MUST BE USED ON STEAM AND ELECTRIC HEAT MODELS.
3 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE CONTACTOR. IF ALL SPEEDS ARE INCORRECT, REVERSE TWO WIRES AT THE POWER INPUT TERMINAL BLOCK. MOTOR WIRES MAY BE GRAY WITH COLORS PRINTED, OR MAY BE COLORED WIRES WITH OR WITHOUT STRIPES.
4 PREP FOR CARD READER OPTION. EITHER ISOLATED RELAY OR ISOLATED TRANSISTOR MAY BE USED. CONSULT MANUAL FOR SPECIFICATIONS AND MORE INFORMATION. MACHINE AVAILABLE IS FLOATING TRANSISTOR. TRANSISTOR ON = MACHINE AVAILABLE, TRANSISTOR OFF = MACHINE NOT AVAILABLE.
5 PREP FOR CENTRAL PAY OPTION. ISOLATED RELAY CONTACTS ARE FOR MACHINE AVAILABLE SIGNAL. ISOLATED 220Vac RELAY COIL IS FOR MACHINE START SIGNAL. CONSULT MANUAL FOR SPECIFICATIONS AND MORE INFORMATION.
6 "A" CONTROL MACHINES ONLY.
7 CONNECT J2-5 MALE CONNECTOR TO J2-5B CONNECTOR FOR "A" CONTROL PREP FOR CARD READER MACHINES. CONNECT J2-5A CONNECTOR FOR ALL OTHER VERSIONS.
ACCESSORY TRANSFORMER (OPTIONAL)
230VAC PRIMARY
DOOR CLOSED MICROSWITCH
DOOR SAFETY RELAY
OPTIONAL STEAM HEAT
OPT. PUMP DRAIN RELAY
OPT. PUMP DRAIN MOTOR
ALL CONTROL CIRCUIT WIRING 18GA(.82mm²) UNLESS OTHERWISE SPECIFIED.
14 AWG (2.5mm²)
L1 FU5
FU5
FU5 RLY 4
T3.15A/250V
L2/N FU6
FU6
FU6 RLY 3
T3.15A/250V
L1 J6-1-6
L2 J6-1-5
T1A 250V
F21
F20
T1.25A 250V
F19
F18
TO LOW VOLTAGE DEVICES
T100ma 250V
J4-1
DOOR UNLOCK TIME DELAY RELAY
CONTACTORS FACE LEFT SIDE OF MACHINE(FROM FRONT)
CONTACTOR DETAIL
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
MECHANICAL INTERLOCK
J9-6 MOTOR CONNECTOR
WHITE (SPIN) (WHITE)
BLACK (SPIN) (BLACK)
BLUE (SPIN) (BLUE)
WHITE (WASH) (WHITE/BLACK)
BLACK (WASH) (BLACK/WHITE)
BLUE (WASH) (BLUE/WHITE)
M1 3Ø
HIGH SPEED
LOW SPEED
CHASSIS

NOTE: Refer to the wiring diagram supplied with your machine.

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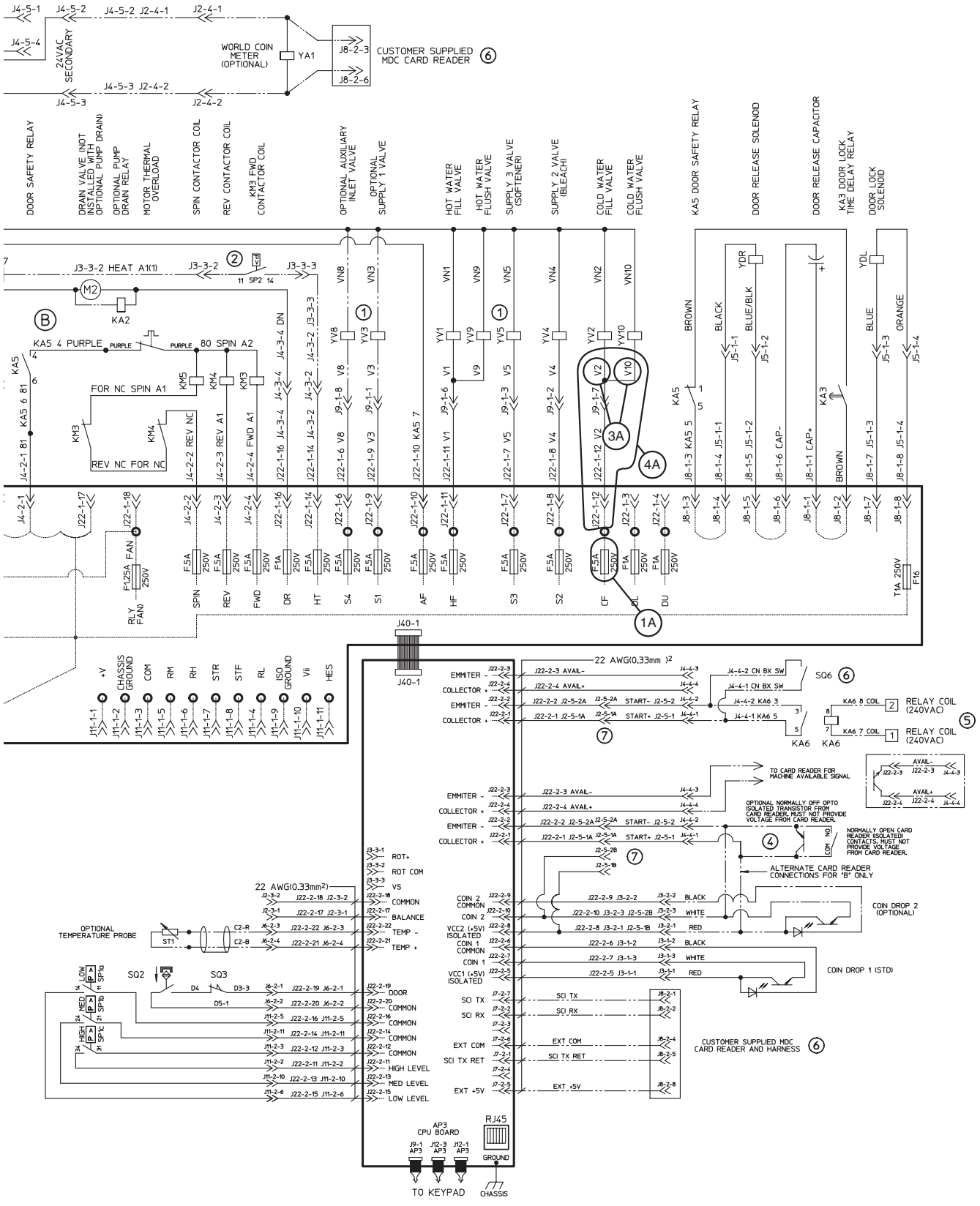
No Cold Fill Analysis (Sheet 2 of 2)



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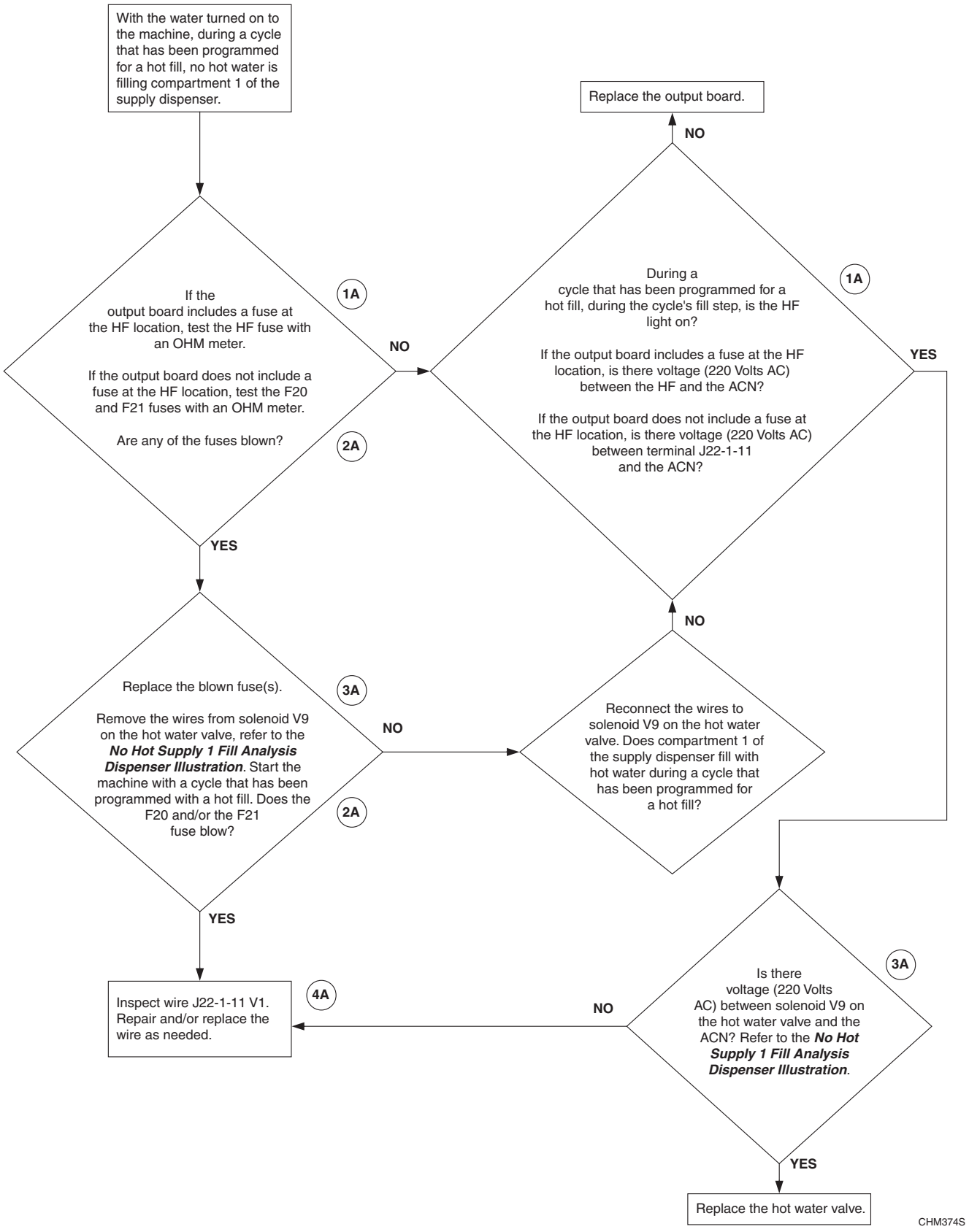
3. No Hot Supply 1 Fill Analysis


With the water turned on to the machine, during a cycle that has been programmed for a hot fill, no hot water is filling compartment 1 of the supply dispenser.
If the output board includes a fuse at the HF location, test the HF fuse with an OHM meter.
If the output board does not include a fuse at the HF location, test the F20 and F21 fuses with an OHM meter.
Are any of the fuses blown?
1A
2A
NO
YES
During a cycle that has been programmed for a hot fill, during the cycle's fill step, is the HF light on?
If the output board includes a fuse at the HF location, is there voltage (220 Volts AC) between the HF and the ACN?
If the output board does not include a fuse at the HF location, is there voltage (220 Volts AC) between terminal J22-1-11 and the ACN?
1A
NO
YES
Replace the output board.
Replace the blown fuse(s).
Remove the wires from solenoid V9 on the hot water valve, refer to the No Hot Supply 1 Fill Analysis Dispenser Illustration. Start the machine with a cycle that has been programmed with a hot fill. Does the F20 and/or the F21 fuse blow?
3A
2A
NO
YES
Reconnect the wires to solenoid V9 on the hot water valve. Does compartment 1 of the supply dispenser fill with hot water during a cycle that has been programmed for a hot fill?
NO
Inspect wire J22-1-11 V1. Repair and/or replace the wire as needed.
4A
Is there voltage (220 Volts AC) between solenoid V9 on the hot water valve and the ACN? Refer to the No Hot Supply 1 Fill Analysis Dispenser Illustration.
3A
NO
YES
Replace the hot water valve.
CHM374S

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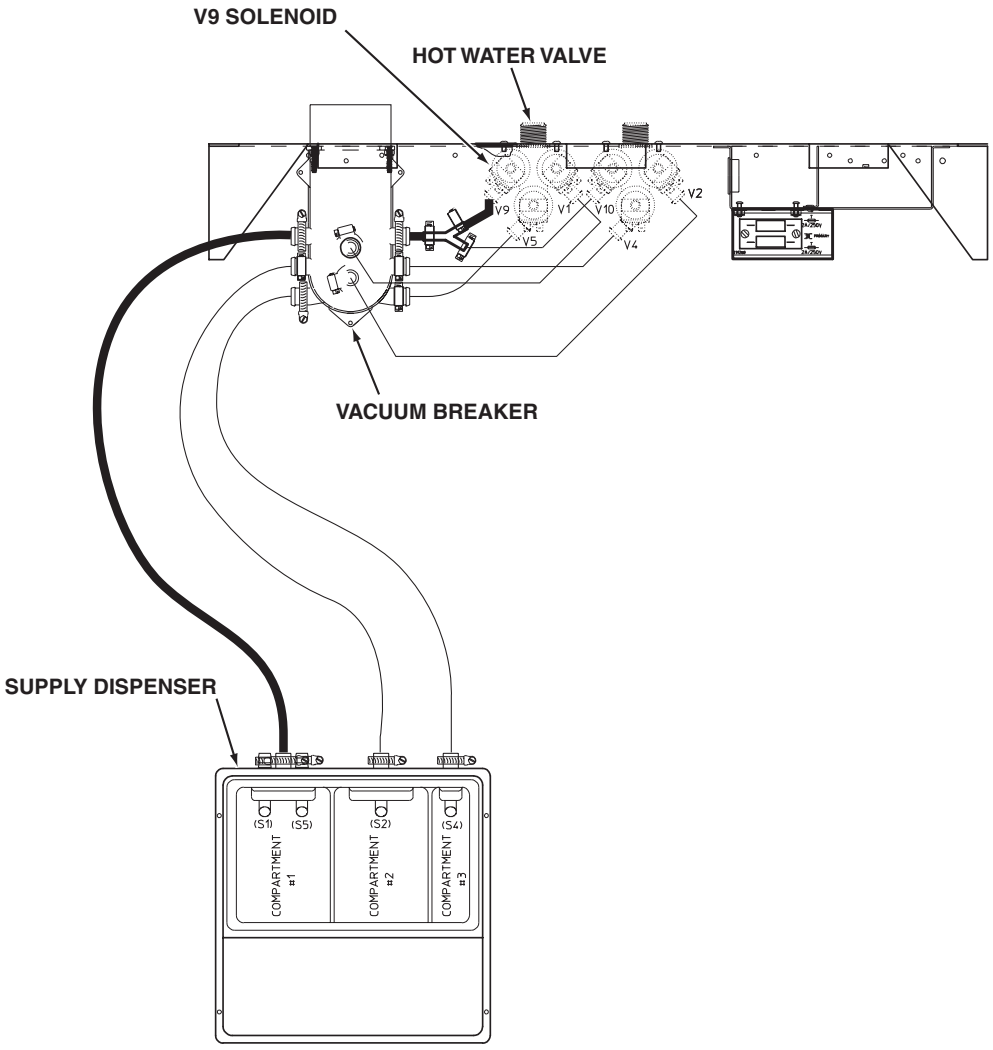
No Hot Supply 1 Fill Analysis Dispenser Illustration



CHM376S

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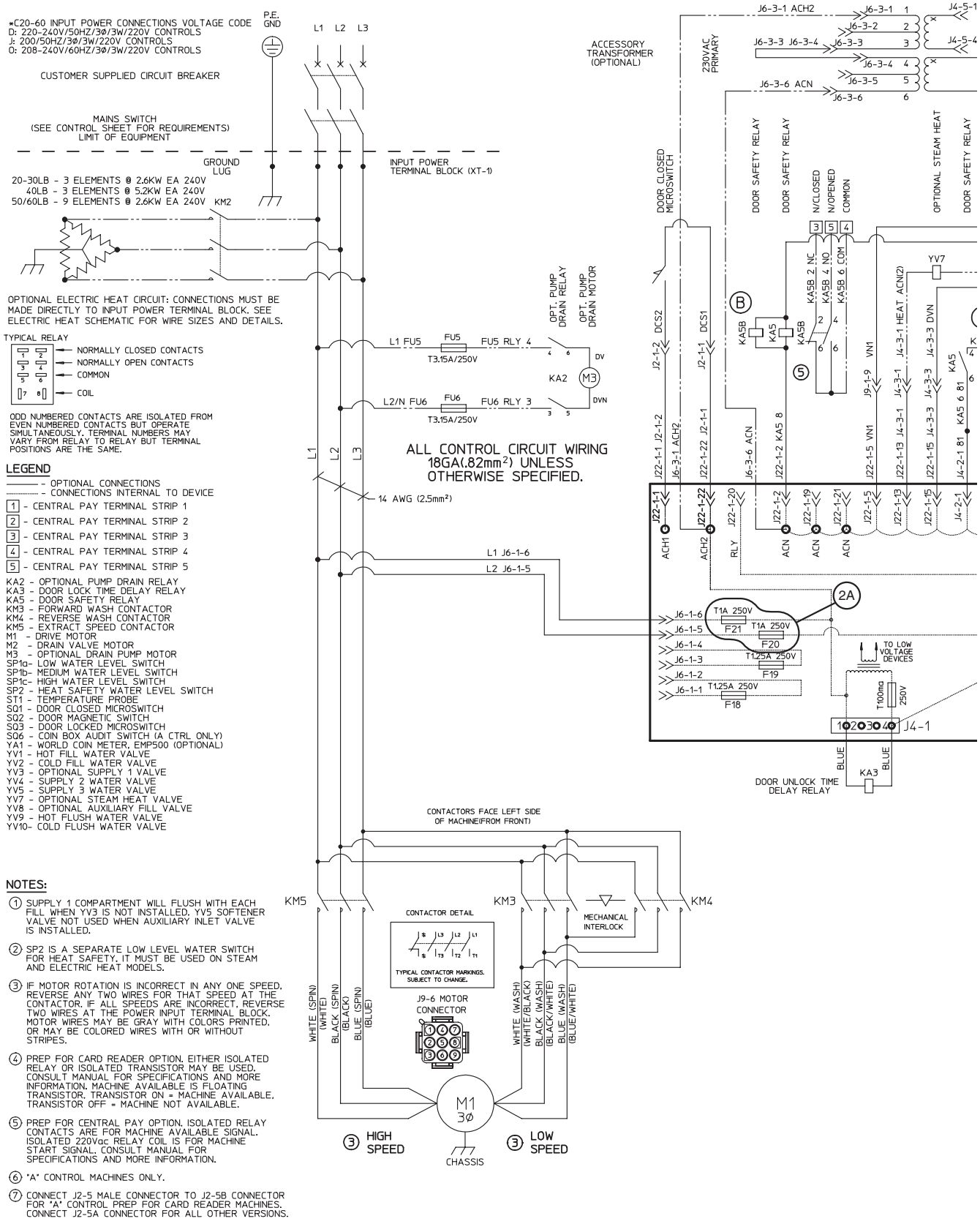
No Hot Supply 1 Fill Analysis (Sheet 1 of 2)


*C20-60 INPUT POWER CONNECTIONS VOLTAGE CODE
D: 220-240V/50HZ/3Ø/3W/220V CONTROLS
J: 200/50HZ/3Ø/3W/220V CONTROLS
O: 208-240V/60HZ/3Ø/3W/220V CONTROLS
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH
(SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
GROUND LUG
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50/60LB - 9 ELEMENTS @ 2.6KW EA 240V
KM2
INPUT POWER TERMINAL BLOCK (XT-1)
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK. SEE ELECTRIC HEAT SCHEMATIC FOR WIRE SIZES AND DETAILS.
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
LEGEND
——— - OPTIONAL CONNECTIONS
..... - CONNECTIONS INTERNAL TO DEVICE
1 - CENTRAL PAY TERMINAL STRIP 1
2 - CENTRAL PAY TERMINAL STRIP 2
3 - CENTRAL PAY TERMINAL STRIP 3
4 - CENTRAL PAY TERMINAL STRIP 4
5 - CENTRAL PAY TERMINAL STRIP 5
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - DOOR LOCK TIME DELAY RELAY
KA5 - DOOR SAFETY RELAY
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- LOW WATER LEVEL SWITCH
SP1b- MEDIUM WATER LEVEL SWITCH
SP1c- HIGH WATER LEVEL SWITCH
SP2 - HEAT SAFETY WATER LEVEL SWITCH
ST1 - TEMPERATURE PROBE
SQ1 - DOOR CLOSED MICROSWITCH
SQ2 - DOOR MAGNETIC SWITCH
SQ3 - DOOR LOCKED MICROSWITCH
SQ6 - COIN BOX AUDIT SWITCH (A CTRL ONLY)
YA1 - WORLD COIN METER, EMP500 (OPTIONAL)
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 WATER VALVE
YV5 - SUPPLY 3 WATER VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV8 - OPTIONAL AUXILIARY FILL VALVE
YV9 - HOT FLUSH WATER VALVE
YV10- COLD FLUSH WATER VALVE
NOTES:
1 SUPPLY 1 COMPARTMENT WILL FLUSH WITH EACH FILL WHEN YV3 IS NOT INSTALLED. YV5 SOFTENER VALVE NOT USED WHEN AUXILIARY INLET VALVE IS INSTALLED.
2 SP2 IS A SEPARATE LOW LEVEL WATER SWITCH FOR HEAT SAFETY. IT MUST BE USED ON STEAM AND ELECTRIC HEAT MODELS.
3 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE CONTACTOR. IF ALL SPEEDS ARE INCORRECT, REVERSE TWO WIRES AT THE POWER INPUT TERMINAL BLOCK. MOTOR WIRES MAY BE GRAY WITH COLORS PRINTED, OR MAY BE COLORED WIRES WITH OR WITHOUT STRIPES.
4 PREP FOR CARD READER OPTION. EITHER ISOLATED RELAY OR ISOLATED TRANSISTOR MAY BE USED. CONSULT MANUAL FOR SPECIFICATIONS AND MORE INFORMATION. MACHINE AVAILABLE IS FLOATING TRANSISTOR. TRANSISTOR ON = MACHINE AVAILABLE, TRANSISTOR OFF = MACHINE NOT AVAILABLE.
5 PREP FOR CENTRAL PAY OPTION. ISOLATED RELAY CONTACTS ARE FOR MACHINE AVAILABLE SIGNAL. ISOLATED 220Vac RELAY COIL IS FOR MACHINE START SIGNAL. CONSULT MANUAL FOR SPECIFICATIONS AND MORE INFORMATION.
6 "A" CONTROL MACHINES ONLY.
7 CONNECT J2-5 MALE CONNECTOR TO J2-5B CONNECTOR FOR "A" CONTROL PREP FOR CARD READER MACHINES. CONNECT J2-5A CONNECTOR FOR ALL OTHER VERSIONS.
ALL CONTROL CIRCUIT WIRING 18GA(.82mm²) UNLESS OTHERWISE SPECIFIED.
14 AWG (2.5mm²)
ACCESSORY TRANSFORMER (OPTIONAL)
230VAC PRIMARY
DOOR CLOSED MICROSWITCH
DOOR SAFETY RELAY
OPTIONAL STEAM HEAT
OPT. PUMP DRAIN RELAY
OPT. PUMP DRAIN MOTOR
DOOR UNLOCK TIME DELAY RELAY
CONTACTORS FACE LEFT SIDE OF MACHINE(FROM FRONT)
CONTACTOR DETAIL
MECHANICAL INTERLOCK
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
J9-6 MOTOR CONNECTOR
TO LOW VOLTAGE DEVICES
HIGH SPEED
LOW SPEED
CHASSIS

NOTE: Refer to the wiring diagram supplied with your machine.

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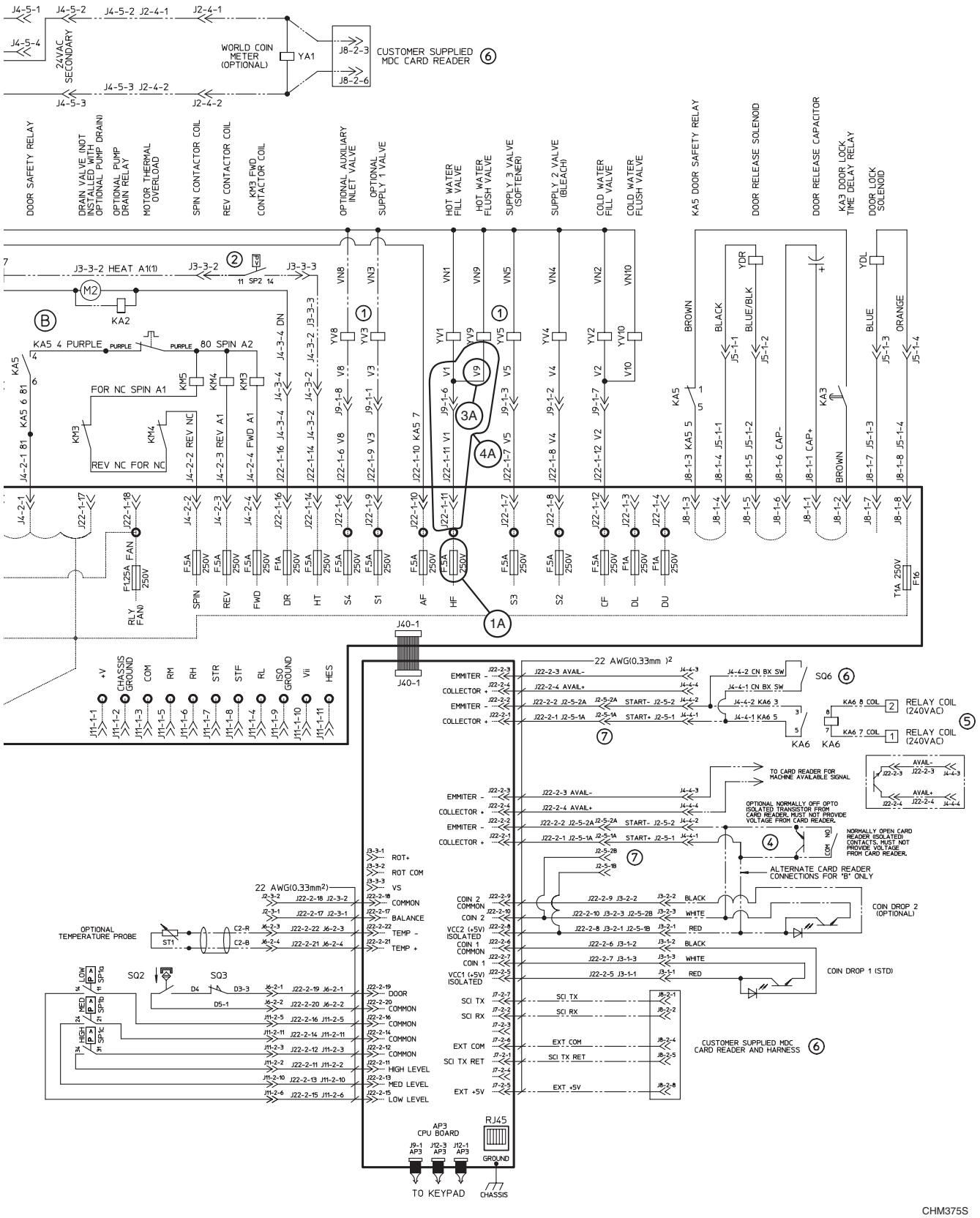
No Hot Supply 1 Fill Analysis (Sheet 2 of 2)



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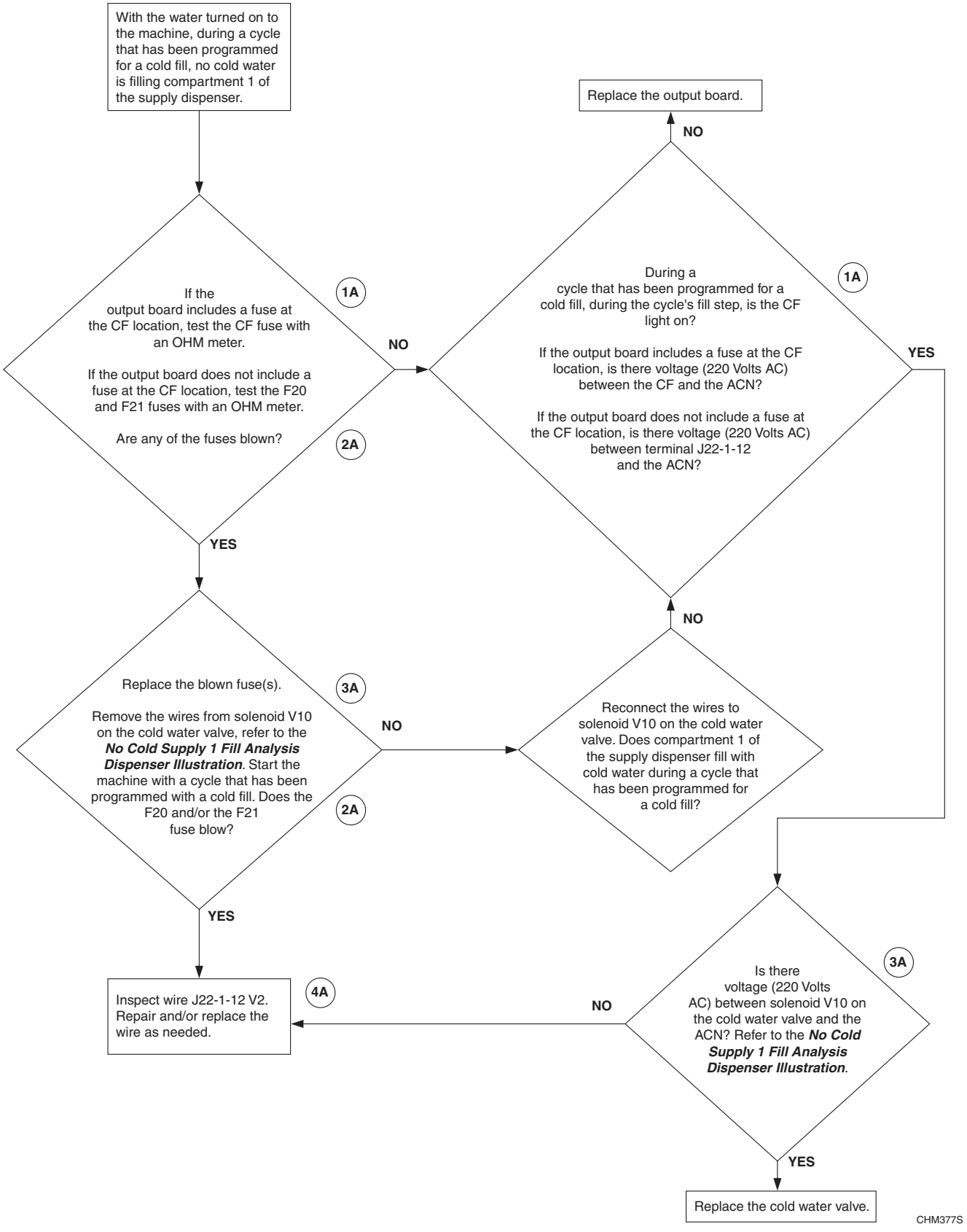
4. No Cold Supply 1 Fill Analysis


With the water turned on to the machine, during a cycle that has been programmed for a cold fill, no cold water is filling compartment 1 of the supply dispenser.
If the output board includes a fuse at the CF location, test the CF fuse with an OHM meter.
If the output board does not include a fuse at the CF location, test the F20 and F21 fuses with an OHM meter.
Are any of the fuses blown?
1A
2A
NO
YES
During a cycle that has been programmed for a cold fill, during the cycle's fill step, is the CF light on?
If the output board includes a fuse at the CF location, is there voltage (220 Volts AC) between the CF and the ACN?
If the output board does not include a fuse at the CF location, is there voltage (220 Volts AC) between terminal J22-1-12 and the ACN?
1A
NO
YES
Replace the output board.
Replace the blown fuse(s).
Remove the wires from solenoid V10 on the cold water valve, refer to the No Cold Supply 1 Fill Analysis Dispenser Illustration. Start the machine with a cycle that has been programmed with a cold fill. Does the F20 and/or the F21 fuse blow?
3A
2A
NO
YES
Reconnect the wires to solenoid V10 on the cold water valve. Does compartment 1 of the supply dispenser fill with cold water during a cycle that has been programmed for a cold fill?
NO
Inspect wire J22-1-12 V2. Repair and/or replace the wire as needed.
4A
Is there voltage (220 Volts AC) between solenoid V10 on the cold water valve and the ACN? Refer to the No Cold Supply 1 Fill Analysis Dispenser Illustration.
3A
NO
YES
Replace the cold water valve.
CHM377S

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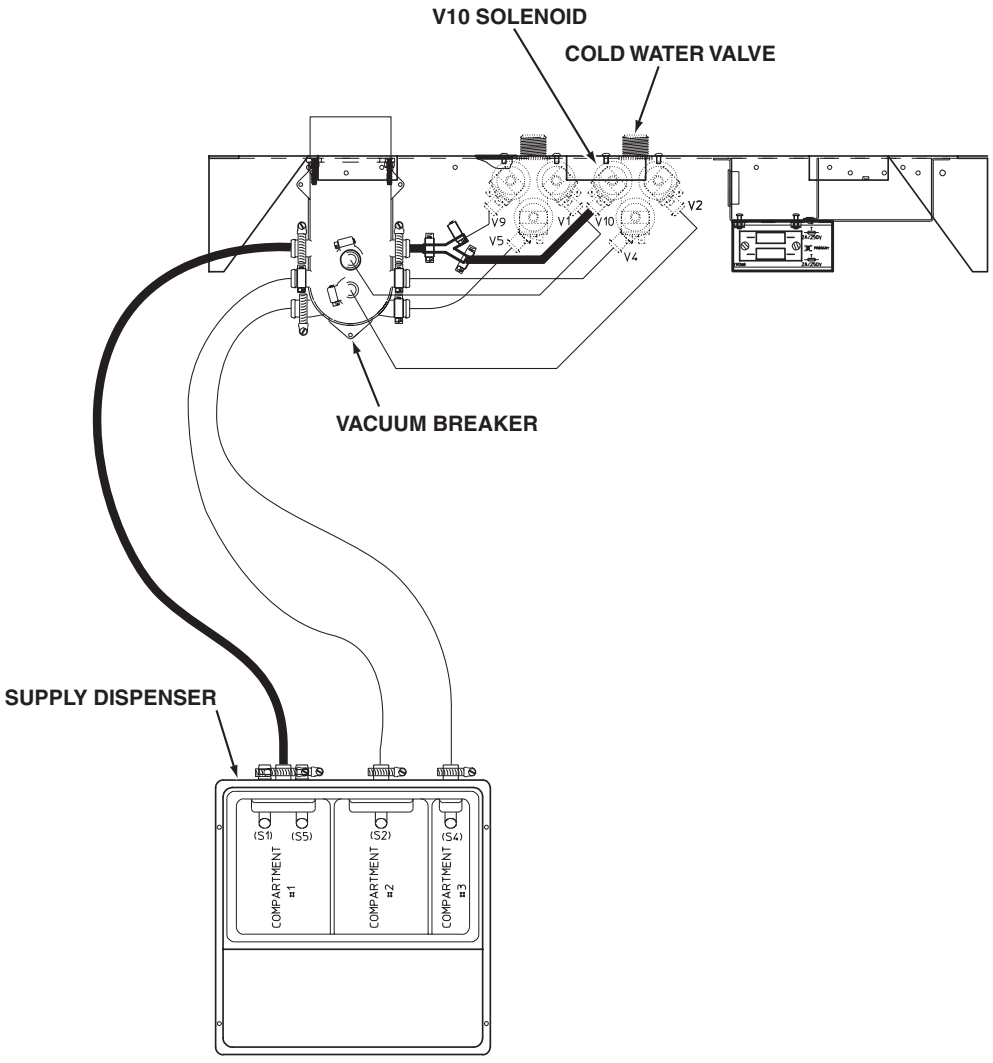
No Cold Supply 1 Fill Analysis Dispenser Illustration



CHM379S

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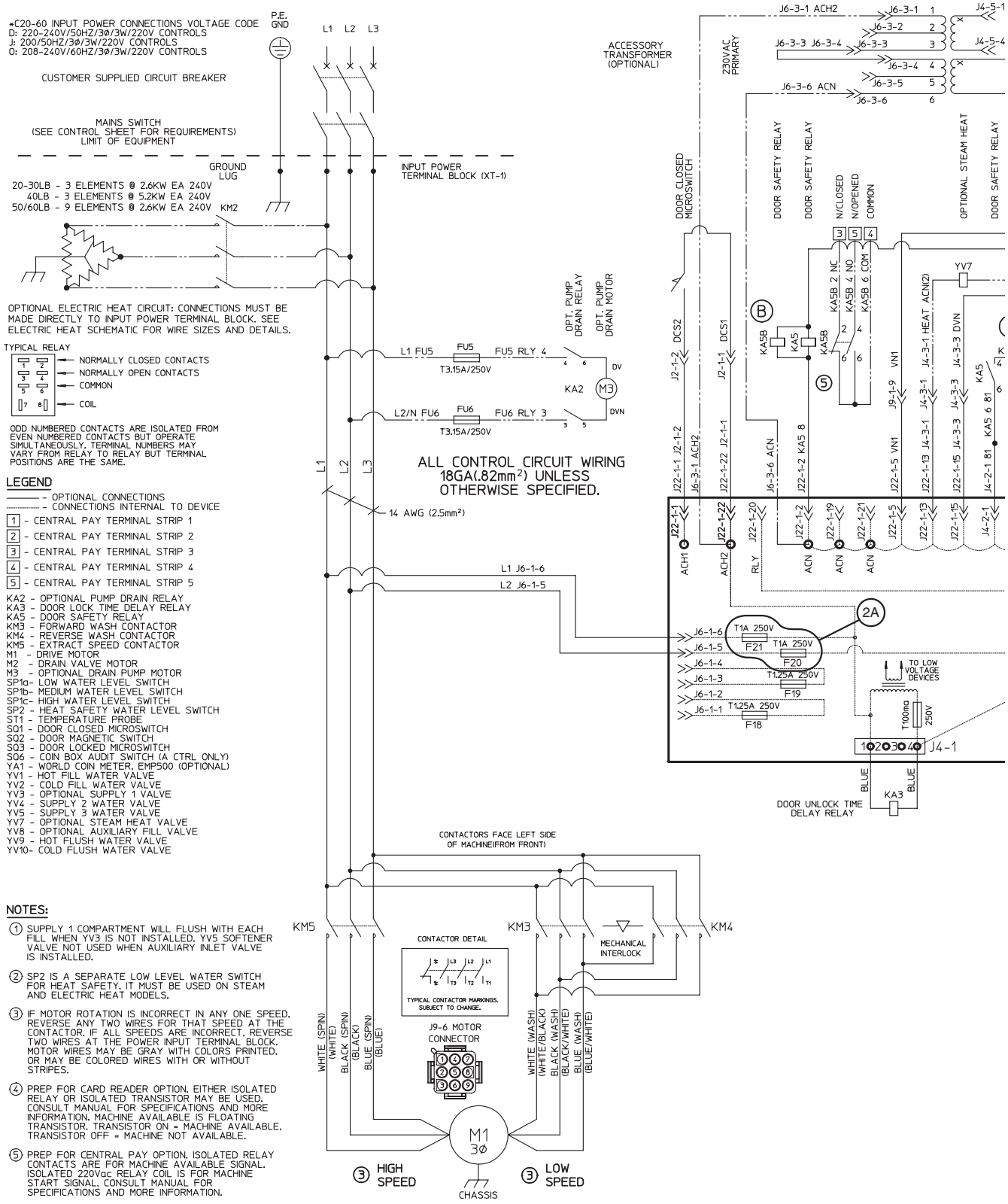
No Cold Supply 1 Fill Analysis (Sheet 1 of 2)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J: 200/50HZ/3Ø/3W/220V CONTROLS
O: 208-240V/60HZ/3Ø/3W/220V CONTROLS
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH
(SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
GROUND LUG
INPUT POWER TERMINAL BLOCK (XT-1)
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50/60LB - 9 ELEMENTS @ 2.6KW EA 240V
KM2
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK. SEE ELECTRIC HEAT SCHEMATIC FOR WIRE SIZES AND DETAILS.
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
LEGEND
- OPTIONAL CONNECTIONS
- CONNECTIONS INTERNAL TO DEVICE
1 - CENTRAL PAY TERMINAL STRIP 1
2 - CENTRAL PAY TERMINAL STRIP 2
3 - CENTRAL PAY TERMINAL STRIP 3
4 - CENTRAL PAY TERMINAL STRIP 4
5 - CENTRAL PAY TERMINAL STRIP 5
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - DOOR LOCK TIME DELAY RELAY
KA5 - DOOR SAFETY RELAY
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- LOW WATER LEVEL SWITCH
SP1b- MEDIUM WATER LEVEL SWITCH
SP1c- HIGH WATER LEVEL SWITCH
SP2 - HEAT SAFETY WATER LEVEL SWITCH
ST1 - TEMPERATURE PROBE
SQ1 - DOOR CLOSED MICROSWITCH
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SQ3 - DOOR LOCKED MICROSWITCH
SQ6 - COIN BOX AUDIT SWITCH (A CTRL ONLY)
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YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 WATER VALVE
YV5 - SUPPLY 3 WATER VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV8 - OPTIONAL AUXILIARY FILL VALVE
YV9 - HOT FLUSH WATER VALVE
YV10- COLD FLUSH WATER VALVE
ALL CONTROL CIRCUIT WIRING 18GA(.82mm²) UNLESS OTHERWISE SPECIFIED.
14 AWG (2.5mm²)
ACCESSORY TRANSFORMER (OPTIONAL)
230VAC PRIMARY
DOOR CLOSED MICROSWITCH
DOOR SAFETY RELAY
OPTIONAL STEAM HEAT
OPT. PUMP DRAIN RELAY
OPT. PUMP DRAIN MOTOR
T3.15A/250V
T1A 250V
T1.25A 250V
TO LOW VOLTAGE DEVICES
DOOR UNLOCK TIME DELAY RELAY
CONTACTORS FACE LEFT SIDE OF MACHINE(FROM FRONT)
CONTACTOR DETAIL
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
MECHANICAL INTERLOCK
J9-6 MOTOR CONNECTOR
WHITE (SPIN) (WHITE)
BLACK (SPIN) (BLACK)
BLUE (SPIN) (BLUE)
WHITE (WASH) (WHITE/BLACK)
BLACK (WASH) (BLACK/WHITE)
BLUE (WASH) (BLUE/WHITE)
M1 3Ø
HIGH SPEED
LOW SPEED
CHASSIS

NOTES:

1. SUPPLY 1 COMPARTMENT WILL FLUSH WITH EACH FILL WHEN YV3 IS NOT INSTALLED. YV5 SOFTENER VALVE NOT USED WHEN AUXILIARY INLET VALVE IS INSTALLED.
2. SP2 IS A SEPARATE LOW LEVEL WATER SWITCH FOR HEAT SAFETY. IT MUST BE USED ON STEAM AND ELECTRIC HEAT MODELS.
3. IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE CONTACTOR. IF ALL SPEEDS ARE INCORRECT, REVERSE TWO WIRES AT THE POWER INPUT TERMINAL BLOCK. MOTOR WIRES MAY BE GRAY WITH COLORS PRINTED, OR MAY BE COLORED WIRES WITH OR WITHOUT STRIPES.
4. PREP FOR CARD READER OPTION. EITHER ISOLATED RELAY OR ISOLATED TRANSISTOR MAY BE USED. CONSULT MANUAL FOR SPECIFICATIONS AND MORE INFORMATION. MACHINE AVAILABLE IS FLOATING TRANSISTOR. TRANSISTOR ON = MACHINE AVAILABLE, TRANSISTOR OFF = MACHINE NOT AVAILABLE.
5. PREP FOR CENTRAL PAY OPTION. ISOLATED RELAY CONTACTS ARE FOR MACHINE AVAILABLE SIGNAL. ISOLATED 220Vac RELAY COIL IS FOR MACHINE START SIGNAL. CONSULT MANUAL FOR SPECIFICATIONS AND MORE INFORMATION.
6. "A" CONTROL MACHINES ONLY.
7. CONNECT J2-5 MALE CONNECTOR TO J2-5B CONNECTOR FOR "A" CONTROL PREP FOR CARD READER MACHINES. CONNECT J2-5A CONNECTOR FOR ALL OTHER VERSIONS.

NOTE: Refer to the wiring diagram supplied with your machine.

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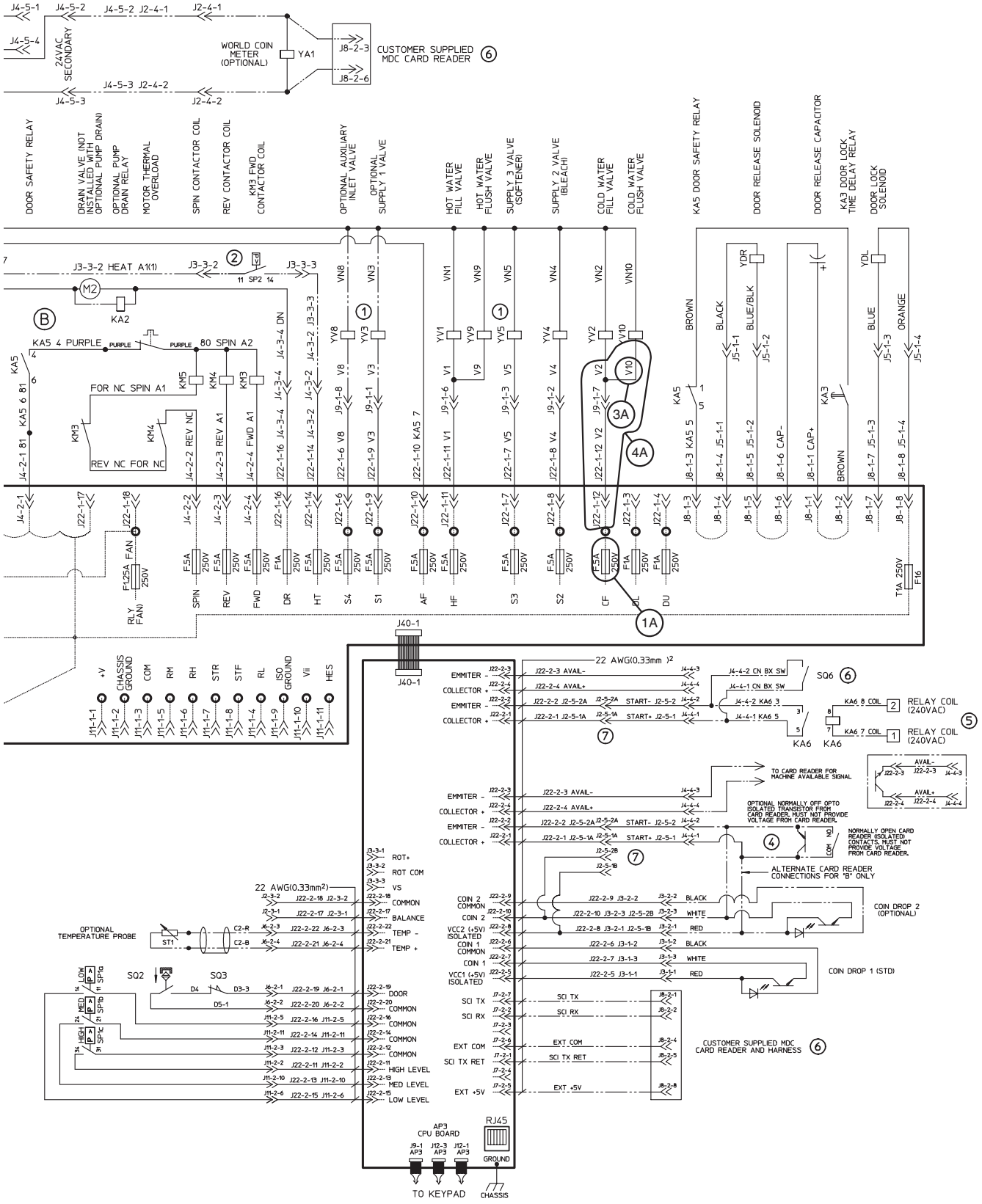
No Cold Supply 1 Fill Analysis (Sheet 2 of 2)



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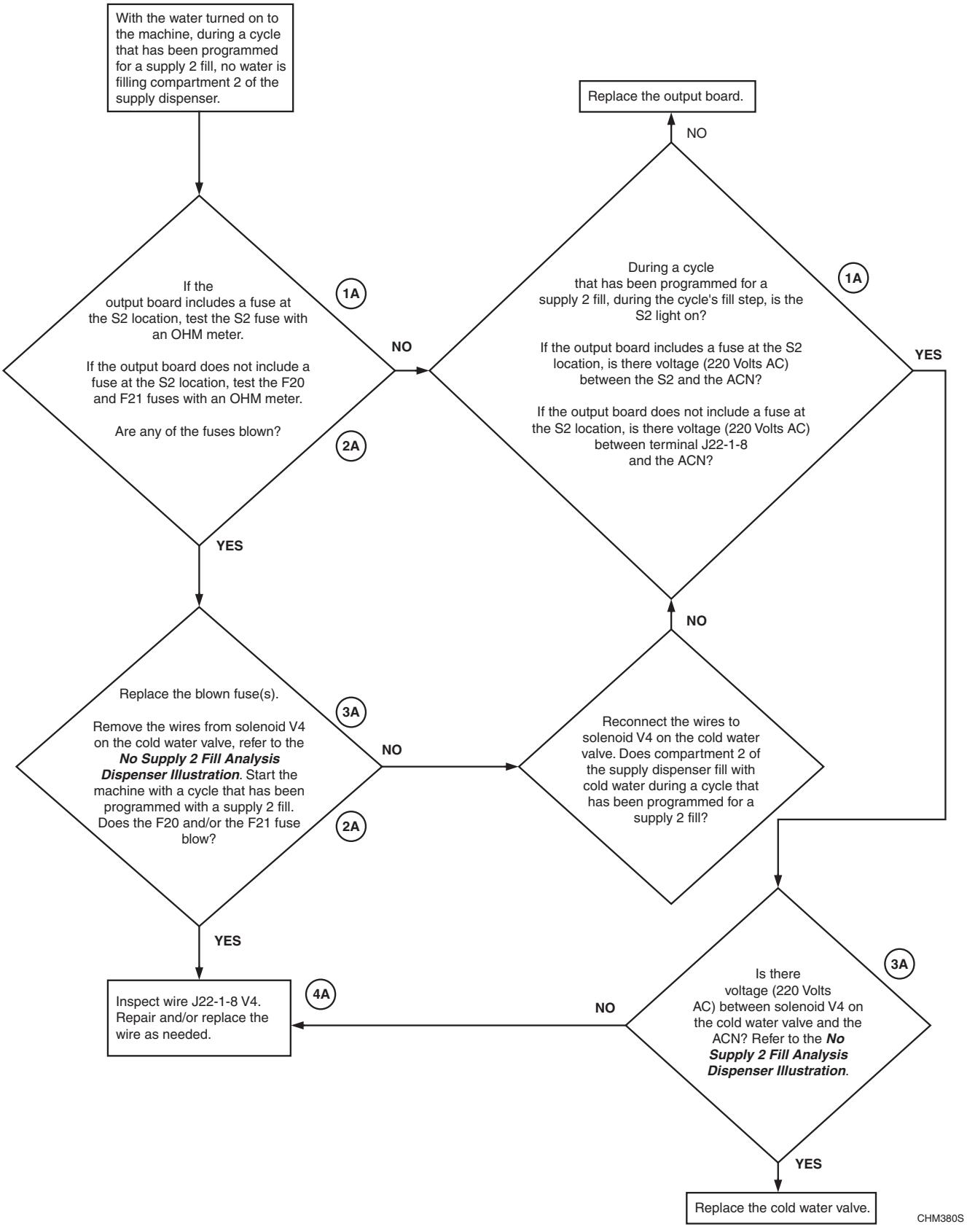
5. No Supply 2 Fill Analysis


With the water turned on to the machine, during a cycle that has been programmed for a supply 2 fill, no water is filling compartment 2 of the supply dispenser.
If the output board includes a fuse at the S2 location, test the S2 fuse with an OHM meter.
If the output board does not include a fuse at the S2 location, test the F20 and F21 fuses with an OHM meter.
Are any of the fuses blown?
1A
2A
NO
YES
During a cycle that has been programmed for a supply 2 fill, during the cycle's fill step, is the S2 light on?
If the output board includes a fuse at the S2 location, is there voltage (220 Volts AC) between the S2 and the ACN?
If the output board does not include a fuse at the S2 location, is there voltage (220 Volts AC) between terminal J22-1-8 and the ACN?
1A
NO
YES
Replace the output board.
Replace the blown fuse(s).
Remove the wires from solenoid V4 on the cold water valve, refer to the No Supply 2 Fill Analysis Dispenser Illustration. Start the machine with a cycle that has been programmed with a supply 2 fill. Does the F20 and/or the F21 fuse blow?
3A
2A
NO
YES
Reconnect the wires to solenoid V4 on the cold water valve. Does compartment 2 of the supply dispenser fill with cold water during a cycle that has been programmed for a supply 2 fill?
NO
Inspect wire J22-1-8 V4. Repair and/or replace the wire as needed.
4A
Is there voltage (220 Volts AC) between solenoid V4 on the cold water valve and the ACN? Refer to the No Supply 2 Fill Analysis Dispenser Illustration.
3A
NO
YES
Replace the cold water valve.
CHM380S

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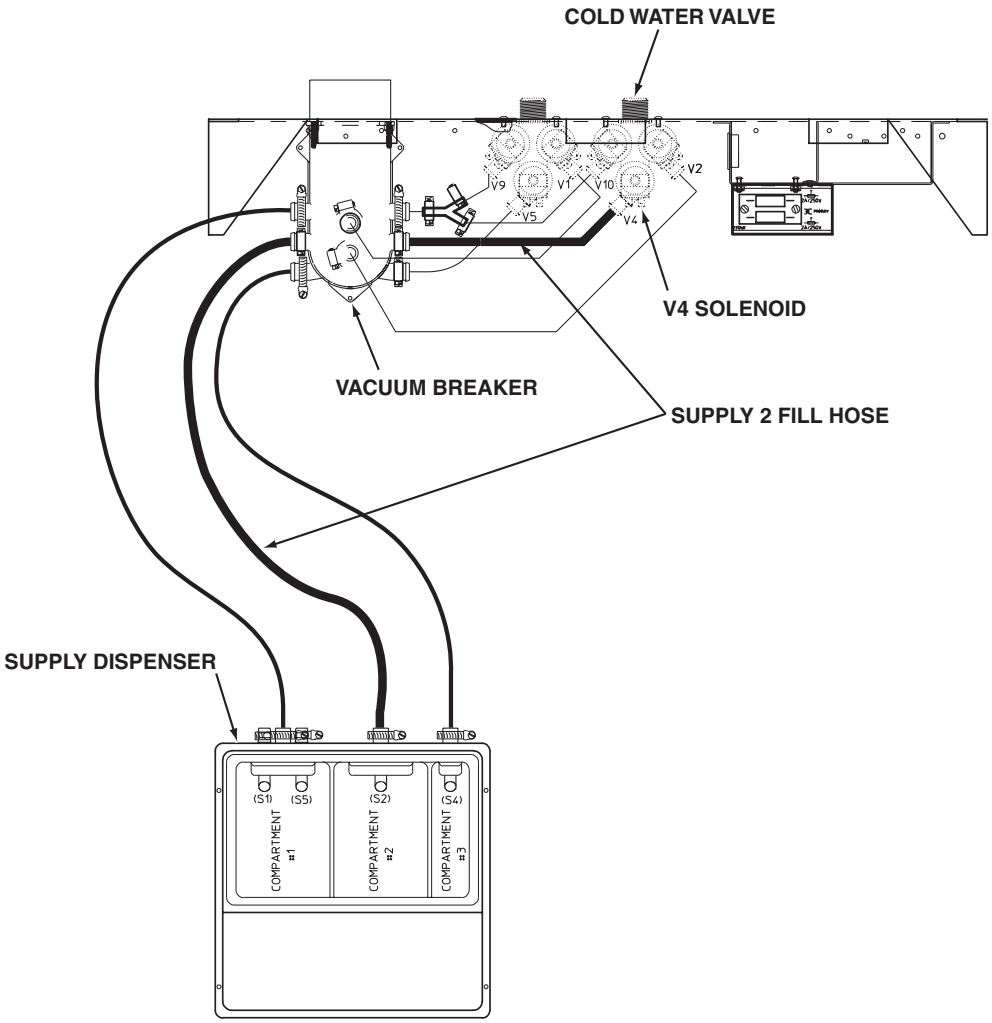
No Supply 2 Fill Analysis Dispenser Illustration



CHM382S

Please refer to the following 2 pages for wiring diagram information.

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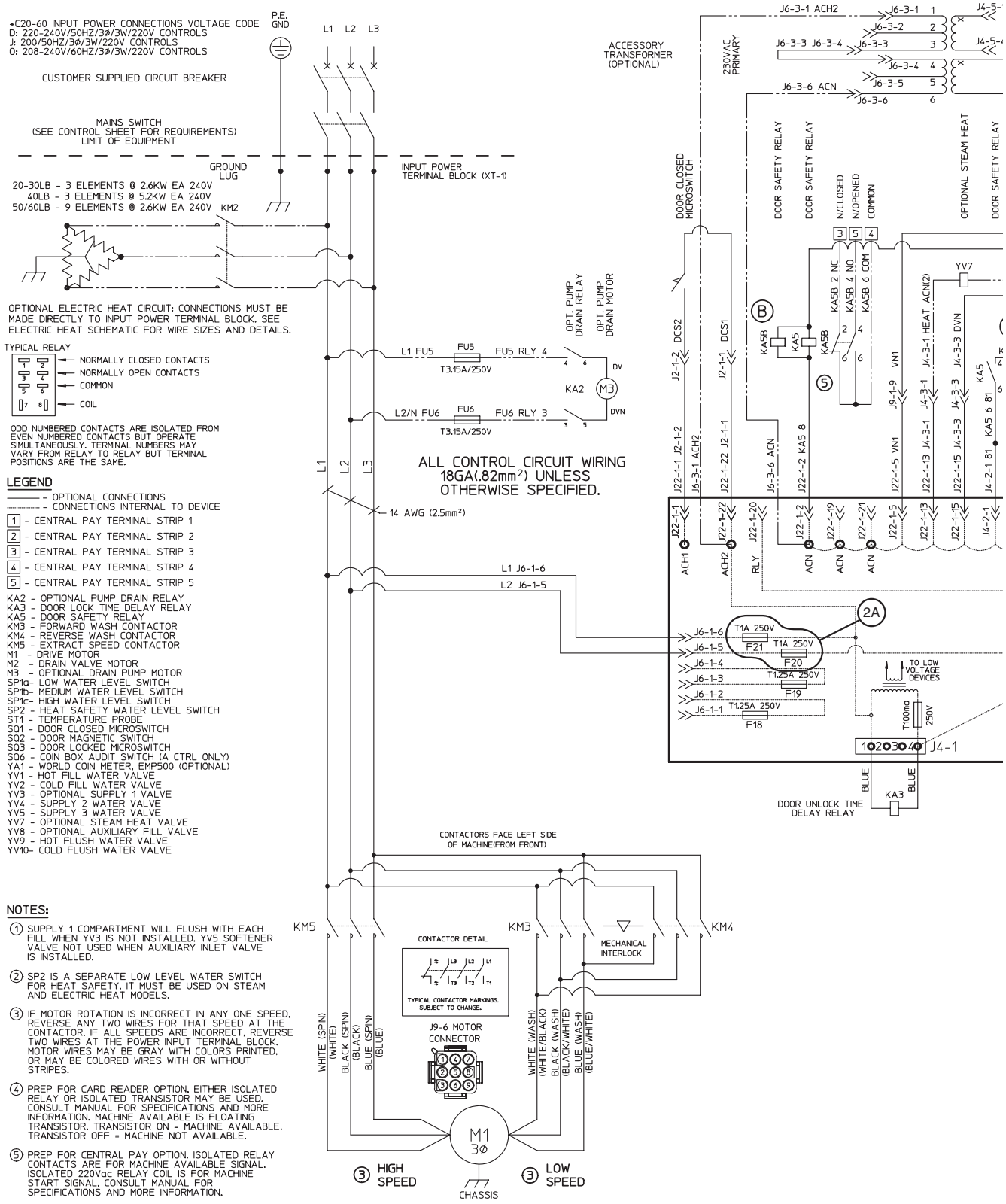
No Supply 2 Fill Analysis (Sheet 1 of 2)



NOTES:

① SUPPLY 1 COMPARTMENT WILL FLUSH WITH EACH FILL WHEN YV3 IS NOT INSTALLED. YV5 SOFTENER VALVE NOT USED WHEN AUXILIARY INLET VALVE IS INSTALLED.

② SP2 IS A SEPARATE LOW LEVEL WATER SWITCH FOR HEAT SAFETY. IT MUST BE USED ON STEAM AND ELECTRIC HEAT MODELS.

③ IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE CONTACTOR. IF ALL SPEEDS ARE INCORRECT, REVERSE TWO WIRES AT THE POWER INPUT TERMINAL BLOCK. MOTOR WIRES MAY BE GRAY WITH COLORS PRINTED, OR MAY BE COLORED WIRES WITH OR WITHOUT STRIPES.

④ PREP FOR CARD READER OPTION. EITHER ISOLATED RELAY OR ISOLATED TRANSISTOR MAY BE USED. CONSULT MANUAL FOR SPECIFICATIONS AND MORE INFORMATION. MACHINE AVAILABLE IS FLOATING TRANSISTOR. TRANSISTOR ON = MACHINE AVAILABLE, TRANSISTOR OFF = MACHINE NOT AVAILABLE.

⑤ PREP FOR CENTRAL PAY OPTION. ISOLATED RELAY CONTACTS ARE FOR MACHINE AVAILABLE SIGNAL. ISOLATED 220Vac RELAY COIL IS FOR MACHINE START SIGNAL. CONSULT MANUAL FOR SPECIFICATIONS AND MORE INFORMATION.

⑥ "A" CONTROL MACHINES ONLY.

⑦ CONNECT J2-5 MALE CONNECTOR TO J2-5B CONNECTOR FOR "A" CONTROL PREP FOR CARD READER MACHINES. CONNECT J2-5A CONNECTOR FOR ALL OTHER VERSIONS.

NOTE: Refer to the wiring diagram supplied with your machine.

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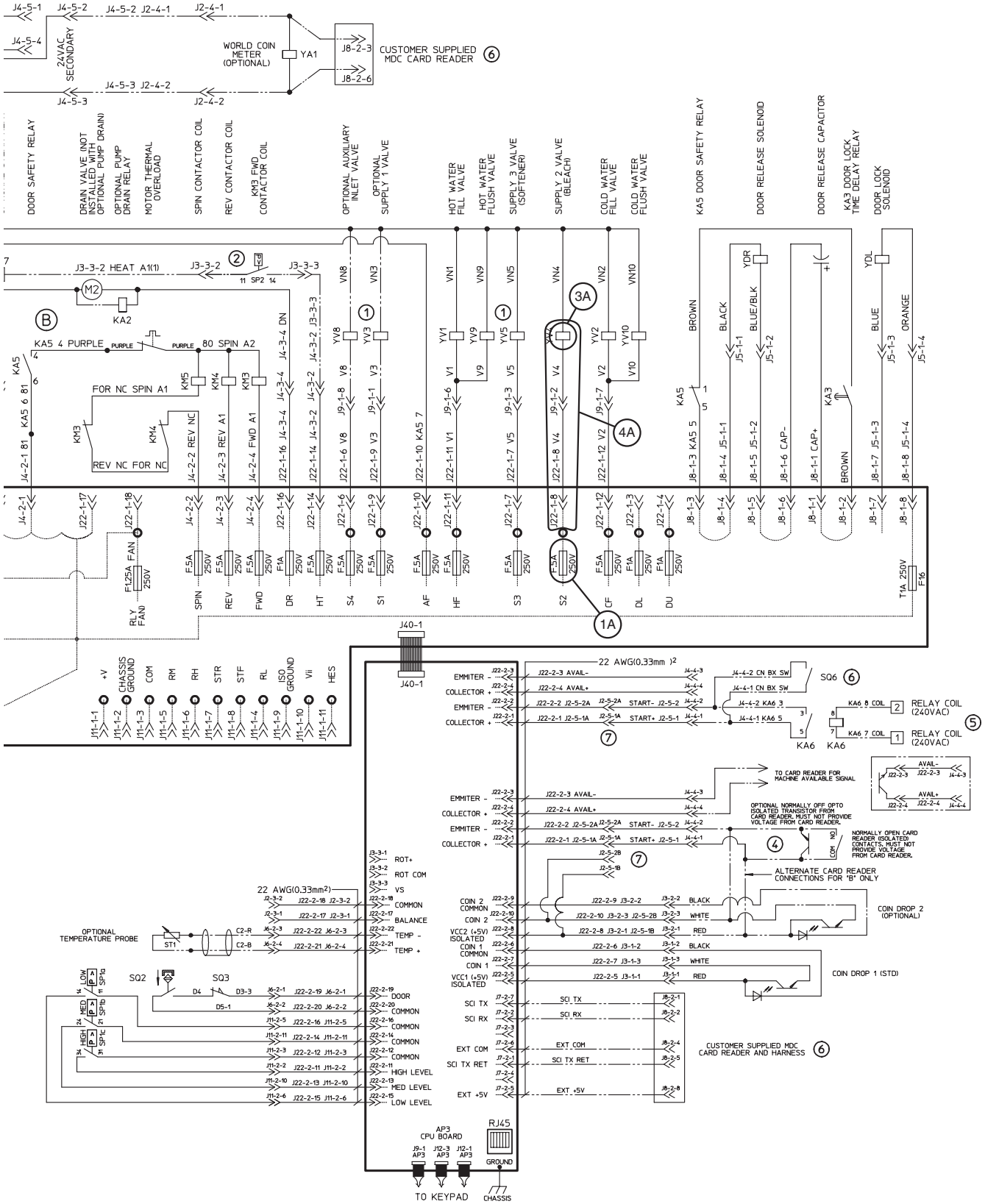
No Supply 2 Fill Analysis (Sheet 2 of 2)



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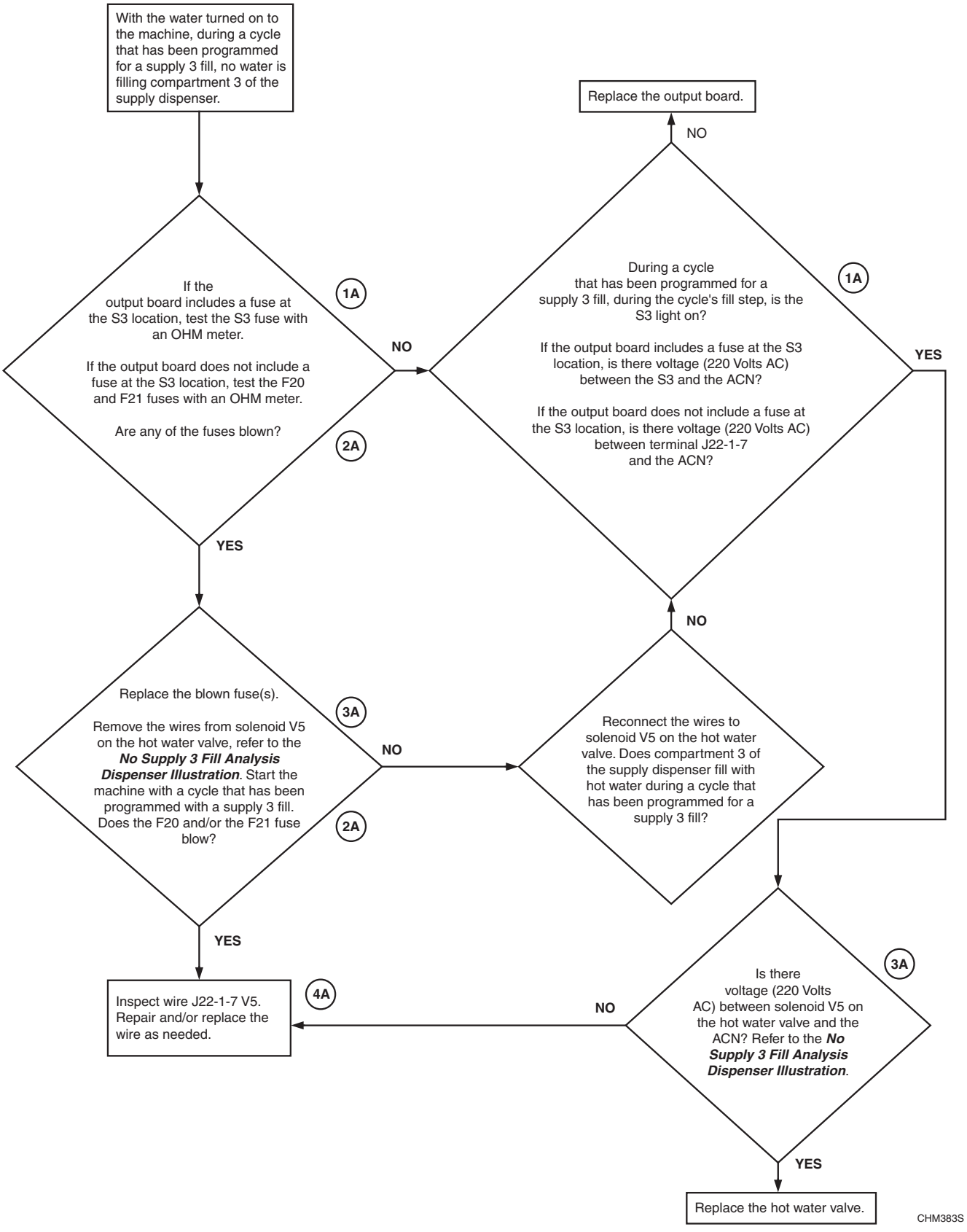
6. No Supply 3 Fill Analysis


With the water turned on to the machine, during a cycle that has been programmed for a supply 3 fill, no water is filling compartment 3 of the supply dispenser.
If the output board includes a fuse at the S3 location, test the S3 fuse with an OHM meter.
If the output board does not include a fuse at the S3 location, test the F20 and F21 fuses with an OHM meter.
Are any of the fuses blown?
1A
2A
NO
YES
Replace the blown fuse(s).
Remove the wires from solenoid V5 on the hot water valve, refer to the ***No Supply 3 Fill Analysis Dispenser Illustration***. Start the machine with a cycle that has been programmed with a supply 3 fill. Does the F20 and/or the F21 fuse blow?
3A
2A
NO
YES
Inspect wire J22-1-7 V5. Repair and/or replace the wire as needed.
4A
Reconnect the wires to solenoid V5 on the hot water valve. Does compartment 3 of the supply dispenser fill with hot water during a cycle that has been programmed for a supply 3 fill?
NO
During a cycle that has been programmed for a supply 3 fill, during the cycle's fill step, is the S3 light on?
If the output board includes a fuse at the S3 location, is there voltage (220 Volts AC) between the S3 and the ACN?
If the output board does not include a fuse at the S3 location, is there voltage (220 Volts AC) between terminal J22-1-7 and the ACN?
1A
YES
NO
Replace the output board.
Is there voltage (220 Volts AC) between solenoid V5 on the hot water valve and the ACN? Refer to the ***No Supply 3 Fill Analysis Dispenser Illustration***.
3A
NO
YES
Replace the hot water valve.
CHM383S

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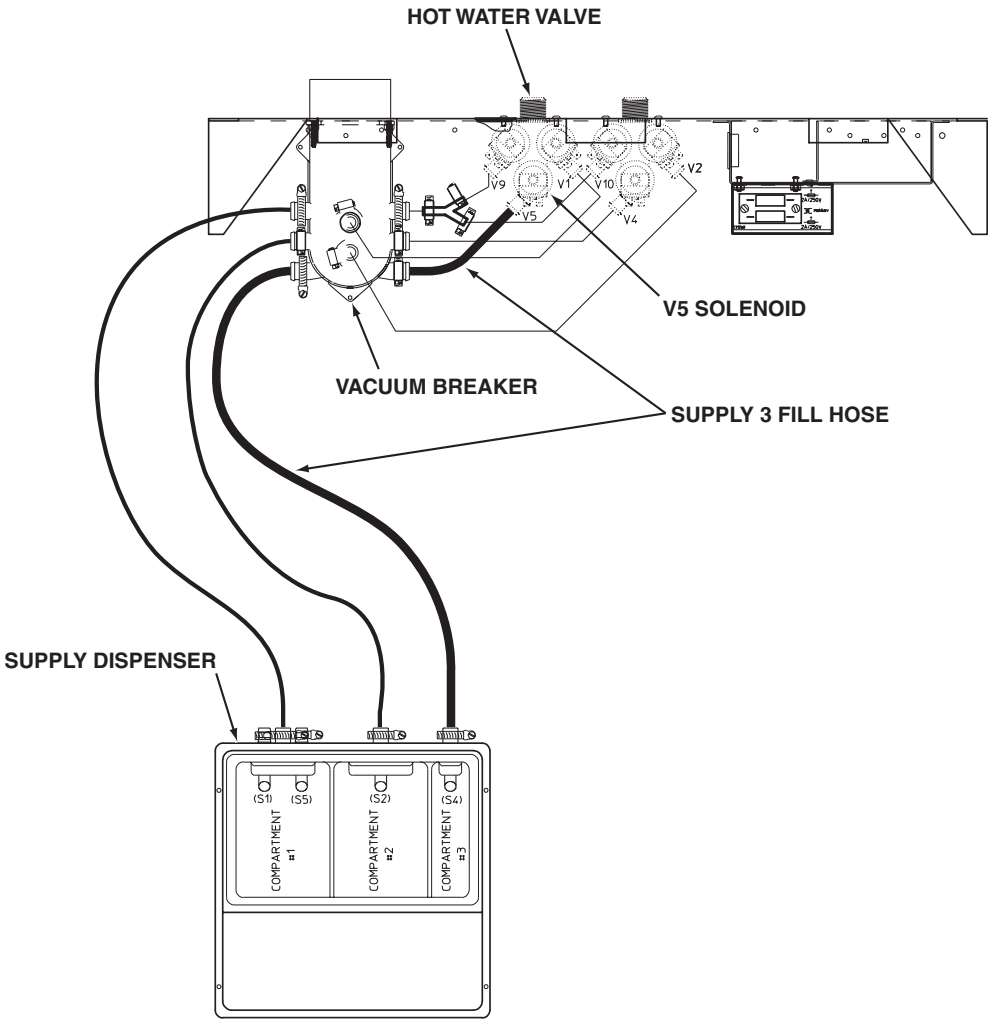
No Supply 3 Fill Analysis Dispenser Illustration



CHM385S

Please refer to the following 2 pages for wiring diagram information.

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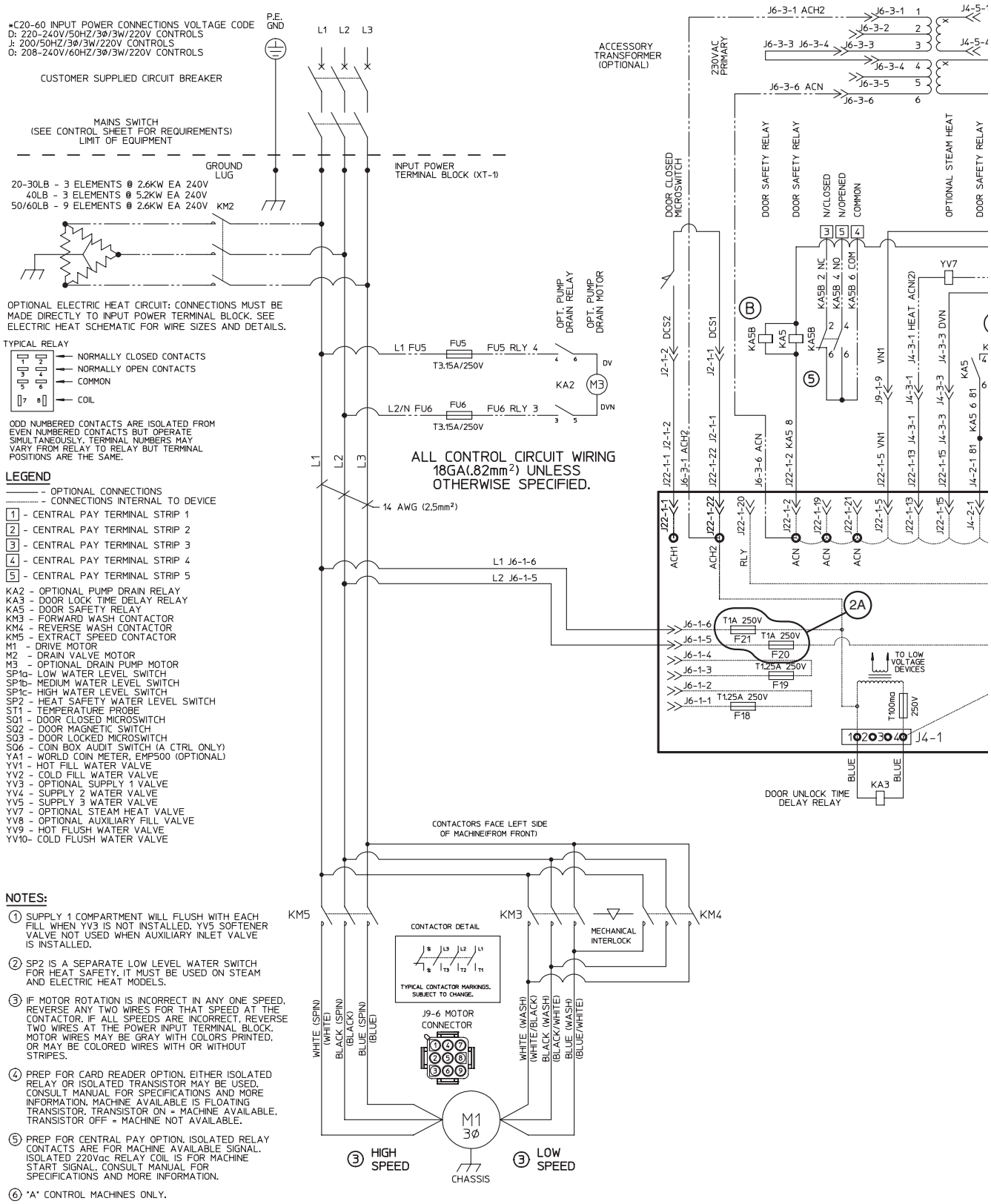
No Supply 3 Fill Analysis (Sheet 1 of 2)


*C20-60 INPUT POWER CONNECTIONS VOLTAGE CODE
D: 220-240V/50HZ/3Ø/3W/220V CONTROLS
J: 200/50HZ/3Ø/3W/220V CONTROLS
O: 208-240V/60HZ/3Ø/3W/220V CONTROLS
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH
(SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
GROUND LUG
INPUT POWER TERMINAL BLOCK (XT-1)
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50/60LB - 9 ELEMENTS @ 2.6KW EA 240V
KM2
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK. SEE ELECTRIC HEAT SCHEMATIC FOR WIRE SIZES AND DETAILS.
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
LEGEND
OPTIONAL CONNECTIONS
CONNECTIONS INTERNAL TO DEVICE
1 - CENTRAL PAY TERMINAL STRIP 1
2 - CENTRAL PAY TERMINAL STRIP 2
3 - CENTRAL PAY TERMINAL STRIP 3
4 - CENTRAL PAY TERMINAL STRIP 4
5 - CENTRAL PAY TERMINAL STRIP 5
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - DOOR LOCK TIME DELAY RELAY
KA5 - DOOR SAFETY RELAY
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- LOW WATER LEVEL SWITCH
SP1b- MEDIUM WATER LEVEL SWITCH
SP1c- HIGH WATER LEVEL SWITCH
SP2 - HEAT SAFETY WATER LEVEL SWITCH
ST1 - TEMPERATURE PROBE
SQ1 - DOOR CLOSED MICROSWITCH
SQ2 - DOOR MAGNETIC SWITCH
SQ3 - DOOR LOCKED MICROSWITCH
SQ6 - COIN BOX AUDIT SWITCH (A CTRL ONLY)
YA1 - WORLD COIN METER, EMP500 (OPTIONAL)
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 WATER VALVE
YV5 - SUPPLY 3 WATER VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV8 - OPTIONAL AUXILIARY FILL VALVE
YV9 - HOT FLUSH WATER VALVE
YV10- COLD FLUSH WATER VALVE
NOTES:
1 SUPPLY 1 COMPARTMENT WILL FLUSH WITH EACH FILL WHEN YV3 IS NOT INSTALLED. YV5 SOFTENER VALVE NOT USED WHEN AUXILIARY INLET VALVE IS INSTALLED.
2 SP2 IS A SEPARATE LOW LEVEL WATER SWITCH FOR HEAT SAFETY. IT MUST BE USED ON STEAM AND ELECTRIC HEAT MODELS.
3 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE CONTACTOR. IF ALL SPEEDS ARE INCORRECT, REVERSE TWO WIRES AT THE POWER INPUT TERMINAL BLOCK. MOTOR WIRES MAY BE GRAY WITH COLORS PRINTED, OR MAY BE COLORED WIRES WITH OR WITHOUT STRIPES.
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6 "A" CONTROL MACHINES ONLY.
7 CONNECT J2-5 MALE CONNECTOR TO J2-5B CONNECTOR FOR "A" CONTROL PREP FOR CARD READER MACHINES. CONNECT J2-5A CONNECTOR FOR ALL OTHER VERSIONS.
ACCESSORY TRANSFORMER (OPTIONAL)
230VAC PRIMARY
DOOR CLOSED MICROSWITCH
DOOR SAFETY RELAY
OPTIONAL STEAM HEAT
OPT. PUMP DRAIN RELAY
OPT. PUMP DRAIN MOTOR
L1 FU5
FU5
T3.15A/250V
FU5 RLY 4
KA2
M3
L2/N FU6
FU6
T3.15A/250V
FU6 RLY 3
ALL CONTROL CIRCUIT WIRING 18GA(.82mm²) UNLESS OTHERWISE SPECIFIED.
14 AWG (2.5mm²)
L1 J6-1-6
L2 J6-1-5
T1A 250V
F21
F20
T1.25A 250V
F19
F18
2A
TO LOW VOLTAGE DEVICES
T100mA 250V
J4-1
DOOR UNLOCK TIME DELAY RELAY
KA3
CONTACTORS FACE LEFT SIDE OF MACHINE(FROM FRONT)
KM5
KM3
KM4
CONTACTOR DETAIL
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
MECHANICAL INTERLOCK
J9-6 MOTOR CONNECTOR
WHITE (SPIN) (WHITE)
BLACK (SPIN) (BLACK)
BLUE (SPIN) (BLUE)
WHITE (WASH) (WHITE/BLACK)
BLACK (WASH) (BLACK/WHITE)
BLUE (WASH) (BLUE/WHITE)
M1 3Ø
HIGH SPEED
LOW SPEED
CHASSIS

NOTE: Refer to the wiring diagram supplied with your machine.

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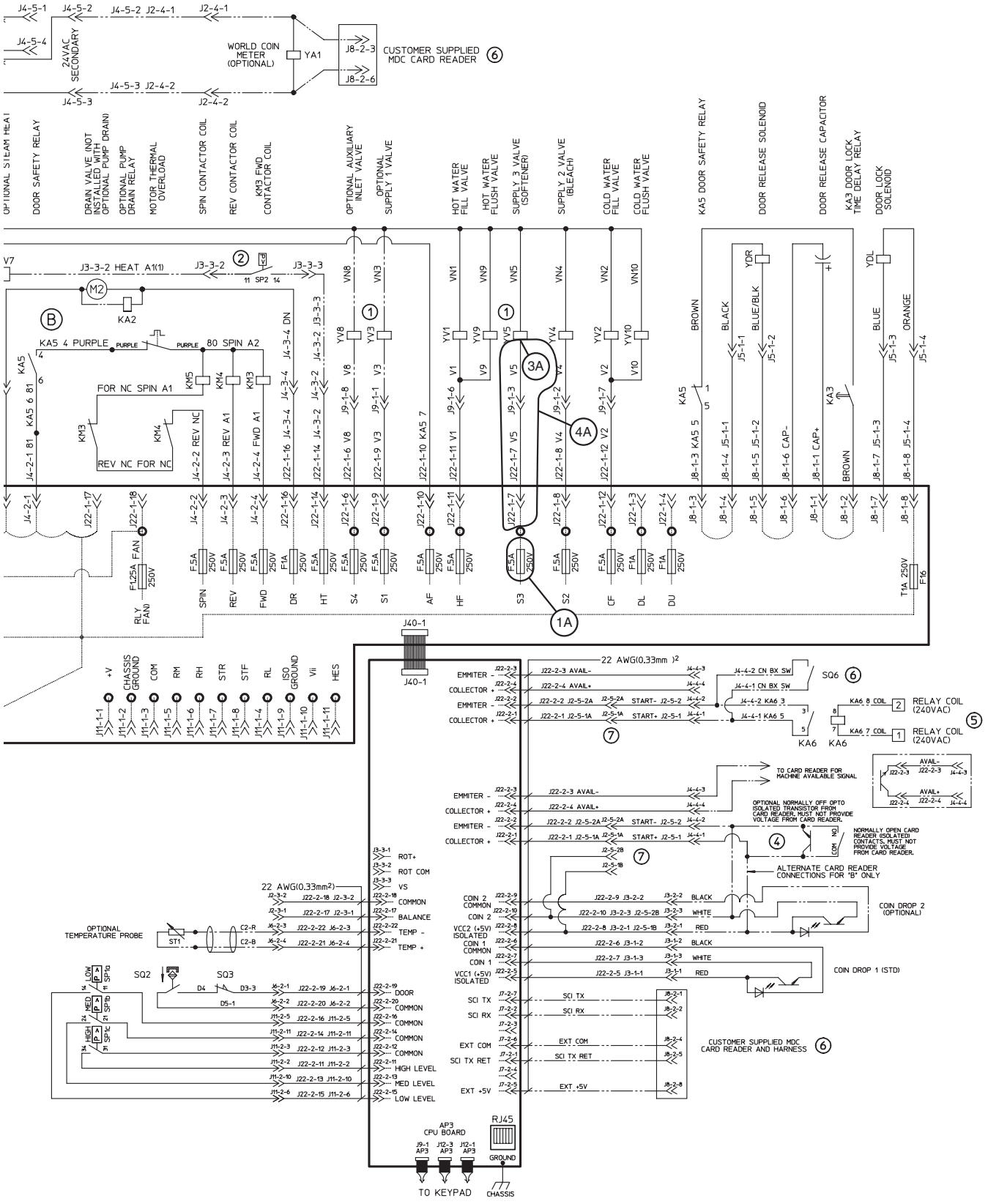
No Supply 3 Fill Analysis (Sheet 2 of 2)



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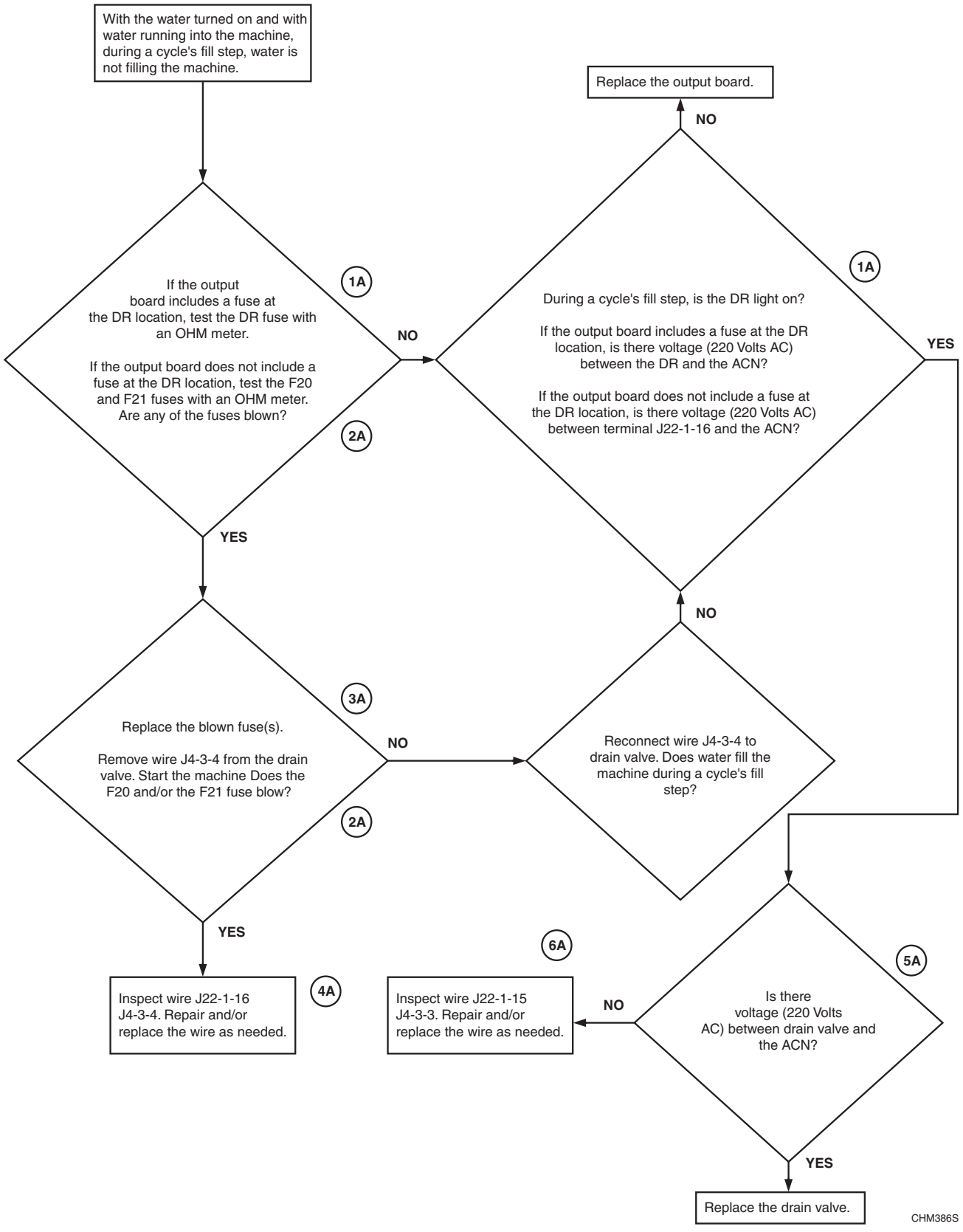
7. Drain Valve Analysis


With the water turned on and with water running into the machine, during a cycle's fill step, water is not filling the machine.
If the output board includes a fuse at the DR location, test the DR fuse with an OHM meter.
If the output board does not include a fuse at the DR location, test the F20 and F21 fuses with an OHM meter. Are any of the fuses blown?
1A
2A
NO
YES
During a cycle's fill step, is the DR light on?
If the output board includes a fuse at the DR location, is there voltage (220 Volts AC) between the DR and the ACN?
If the output board does not include a fuse at the DR location, is there voltage (220 Volts AC) between terminal J22-1-16 and the ACN?
1A
NO
YES
Replace the output board.
Replace the blown fuse(s).
Remove wire J4-3-4 from the drain valve. Start the machine Does the F20 and/or the F21 fuse blow?
3A
2A
NO
YES
Reconnect wire J4-3-4 to drain valve. Does water fill the machine during a cycle's fill step?
NO
Inspect wire J22-1-16 J4-3-4. Repair and/or replace the wire as needed.
4A
Inspect wire J22-1-15 J4-3-3. Repair and/or replace the wire as needed.
6A
Is there voltage (220 Volts AC) between drain valve and the ACN?
5A
NO
YES
Replace the drain valve.
CHM386S

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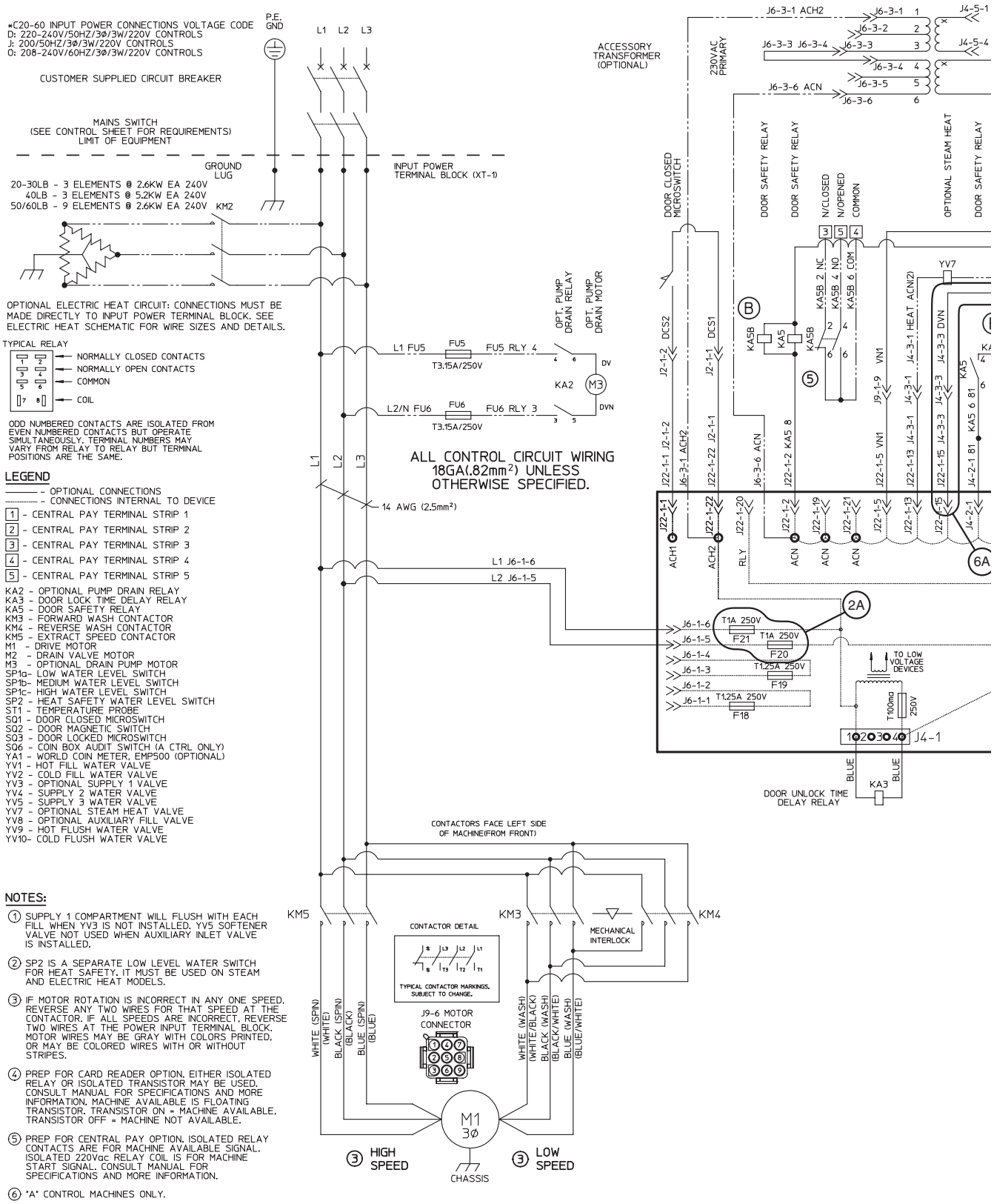
Drain Valve Analysis (Sheet 1 of 2)



NOTES:

① SUPPLY 1 COMPARTMENT WILL FLUSH WITH EACH FILL WHEN YV3 IS NOT INSTALLED. YV5 SOFTENER VALVE NOT USED WHEN AUXILIARY INLET VALVE IS INSTALLED.

② SP2 IS A SEPARATE LOW LEVEL WATER SWITCH FOR HEAT SAFETY. IT MUST BE USED ON STEAM AND ELECTRIC HEAT MODELS.

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⑥ "A" CONTROL MACHINES ONLY.

⑦ CONNECT J2-5 MALE CONNECTOR TO J2-5B CONNECTOR FOR "A" CONTROL PREP FOR CARD READER MACHINES. CONNECT J2-5A CONNECTOR FOR ALL OTHER VERSIONS.

NOTE: Refer to the wiring diagram supplied with your machine.

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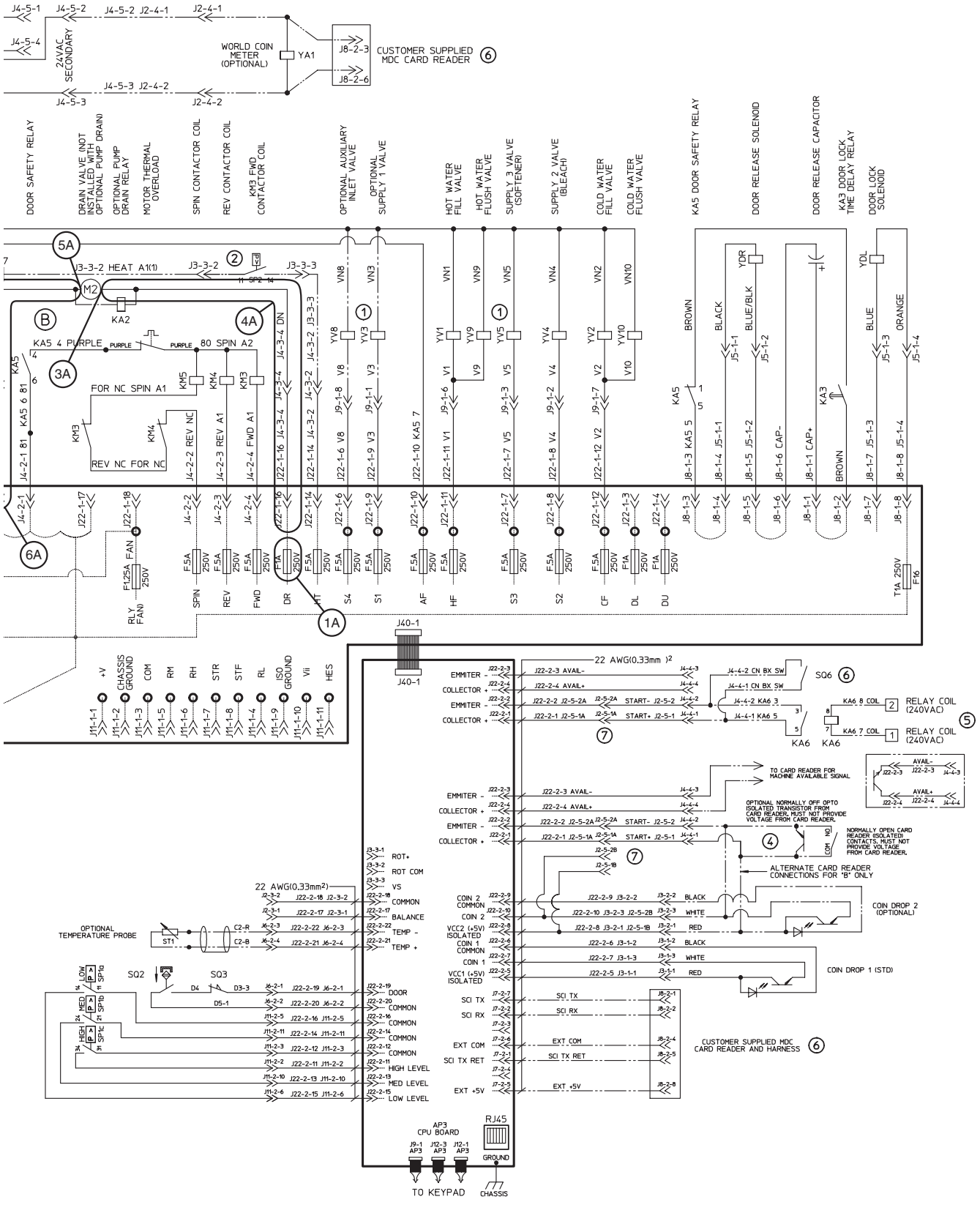
Drain Valve Analysis (Sheet 2 of 2)



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8. Compartment 2 of Supply Dispenser Not Flushing Completely

Compartment 2 of the supply dispenser is not flushing completely.

Is there low water pressure (i.e., less than 30 psi) to the supply dispenser?

Yes

Install a hose clamp onto one of the hoses connecting to the top of the vacuum breaker and tighten the hose clamp slightly. Refer to the ***Vacuum Breaker Illustration***

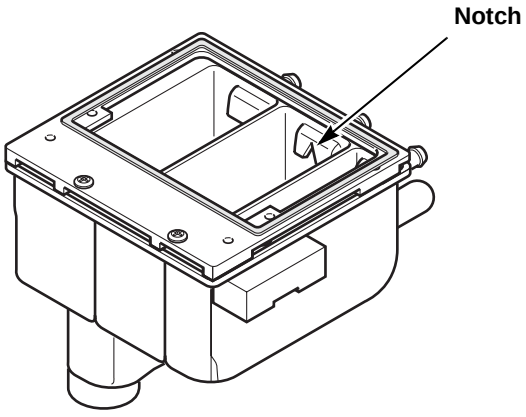
NOTE: If the water pressure is corrected to factory specifications, the hose clamp may have to be removed.

As an alternative, cut a 3/4-inch by 1/2 inch notch out of the bottom of the water deflector in compartment 2 of the supply dispenser. Refer to the ***Dispenser Illustration***

NOTE: If the water pressure is corrected to factory specifications, the notch must be plugged to avoid splashing.

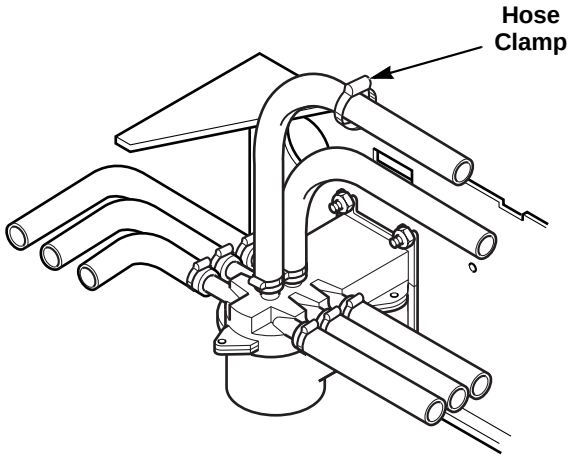
CHM443S

Dispenser Illustration



CHM366S

Vacuum Breaker Illustration



CHM441S

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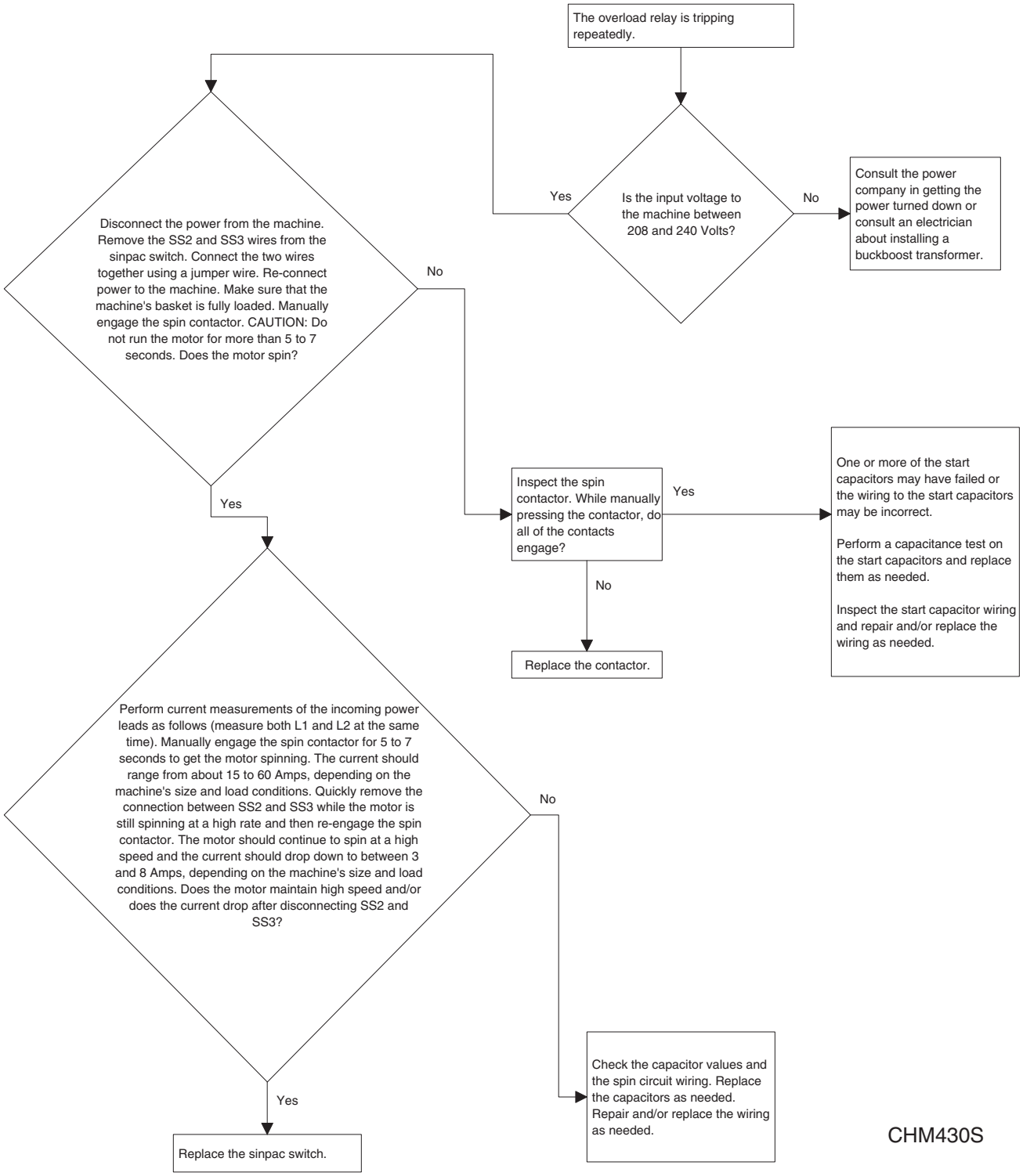
9. Overload Relay Tripping Repeatedly

Repeated overload tripping may result from a failed sinpac switch. Symptoms of a failed sinpac switch may include motor humming without rotation during spin or high current during running speed.


The overload relay is tripping repeatedly.
Is the input voltage to the machine between 208 and 240 Volts?
Yes
No
Consult the power company in getting the power turned down or consult an electrician about installing a buckboost transformer.
Disconnect the power from the machine. Remove the SS2 and SS3 wires from the sinpac switch. Connect the two wires together using a jumper wire. Re-connect power to the machine. Make sure that the machine's basket is fully loaded. Manually engage the spin contactor. CAUTION: Do not run the motor for more than 5 to 7 seconds. Does the motor spin?
No
Yes
Inspect the spin contactor. While manually pressing the contactor, do all of the contacts engage?
Yes
No
One or more of the start capacitors may have failed or the wiring to the start capacitors may be incorrect.
Perform a capacitance test on the start capacitors and replace them as needed.
Inspect the start capacitor wiring and repair and/or replace the wiring as needed.
Replace the contactor.
Perform current measurements of the incoming power leads as follows (measure both L1 and L2 at the same time). Manually engage the spin contactor for 5 to 7 seconds to get the motor spinning. The current should range from about 15 to 60 Amps, depending on the machine's size and load conditions. Quickly remove the connection between SS2 and SS3 while the motor is still spinning at a high rate and then re-engage the spin contactor. The motor should continue to spin at a high speed and the current should drop down to between 3 and 8 Amps, depending on the machine's size and load conditions. Does the motor maintain high speed and/or does the current drop after disconnecting SS2 and SS3?
No
Yes
Check the capacitor values and the spin circuit wiring. Replace the capacitors as needed. Repair and/or replace the wiring as needed.
Replace the sinpac switch.

CHM430S

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10. Troubleshooting and Cleaning the Coin Drop

When coins are placed into the coin slot, do they fall into the coin vault and does the coin drop sensor register that coins have been entered? Refer to *Figure 1* for the path that coins follow when the drop is working properly.

No

Is proper electrical power supplied to the coin drop?

No → Refer to the wiring diagram supplied with the machine for connection information.

Yes

Is the machine level?

No → Refer to the installation manual supplied with the machine for instructions on leveling the machine.

Yes

Is the coin drop clean?

No

1. Disconnect electrical power to the machine and the coin drop.

2. Remove the coin drop from the machine.

3. If lint is preventing coins from rolling through the coin drop, blow compressed air through the coin entry and along the side of the coin drop. Refer to *Figure 2*.

4. Insert a coin into the coin drop. If the coin does not fall through the drop, continue to step 5.

5. Remove the cotter pin from the top of the drop. Refer to *Figure 2*. Save the pin for reinstallation when the cleaning of the coin drop is complete.

6. Move the metal clip closer to the sensor so that it comes off of the frame. Refer to *Figure 2*.

7. Remove the coin return from the coin drop frame. Refer to *Figure 3*.

8. Check the path in the coin drop for lint and residue. If lint or light residue is present, use a cotton swab to remove it. If heavy residue is present, it may be necessary to first scrape off the excessive residue and then to use a cotton swab dipped in water or isopropyl alcohol to remove the remainder of the residue. Refer to *Figure 4*.

9. Check the return pendulum to verify it swings freely. If the pendulum does not swing freely, spray the pendulum pivot point with Teflon-based lubricant and move the pendulum back and forth 3 times. An additional application of Teflon-based lubricant may be necessary to ensure the pendulum swings freely. Refer to *Figure 5*

10. Check the coin drop sensor for dust or dirt on the eyes. Wipe the eyes with a dry cotton swab. Refer to *Figure 6*. IMPORTANT: Do not use isopropyl alcohol to clean the electronic sensor or eyes.

11. Reinstall the coin return onto the coin drop frame.

12. Reinstall the metal clip and slide toward the coin insert slot. All cotter pin holes must line up.

13. Reinstall the cotter pin.

14. Place the coin drop on a level surface to verify that coins follow the correct path to the coin drop. It may be necessary to lift the coin drop to allow the coin to follow through the sensor.

15. Reinstall the coin drop into the machine.

16. Reconnect electrical power to the machine and coin drop.

17. Insert a coin into the coin drop to verify that the coin drop is operating properly.

If the coin drop does not operate properly after the above steps have been completed, corrosion of the metal or vandalized components within the coin drop may be preventing it from functioning properly. Replace the coin drop.

CHM456S

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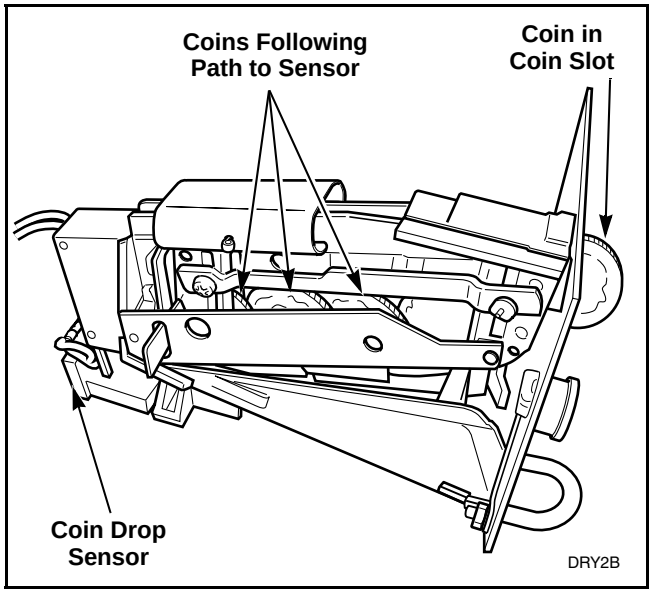

Figure 1

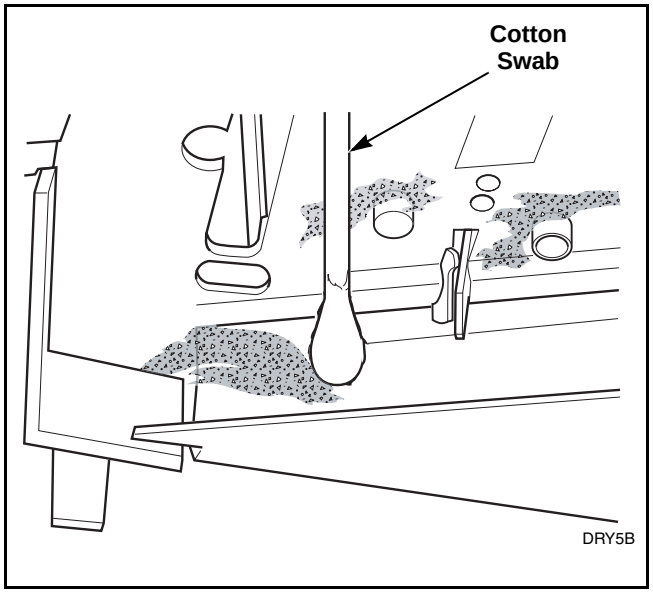

Figure 4

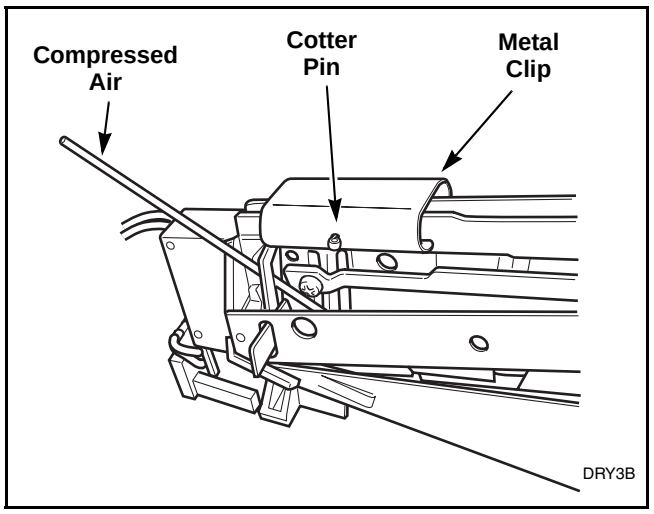

Figure 2

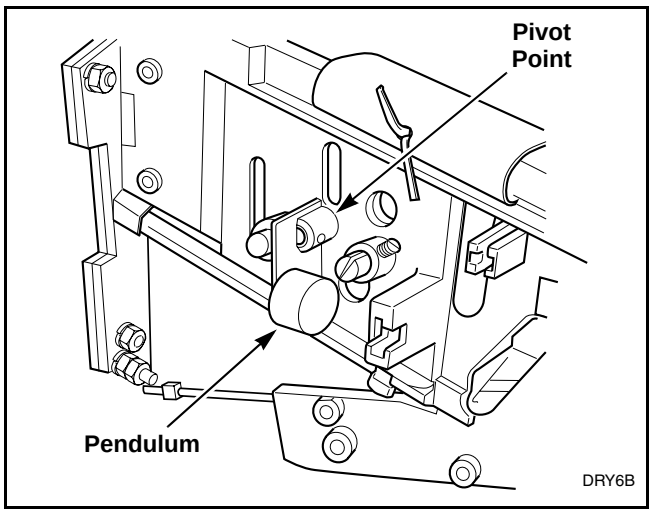

Figure 5

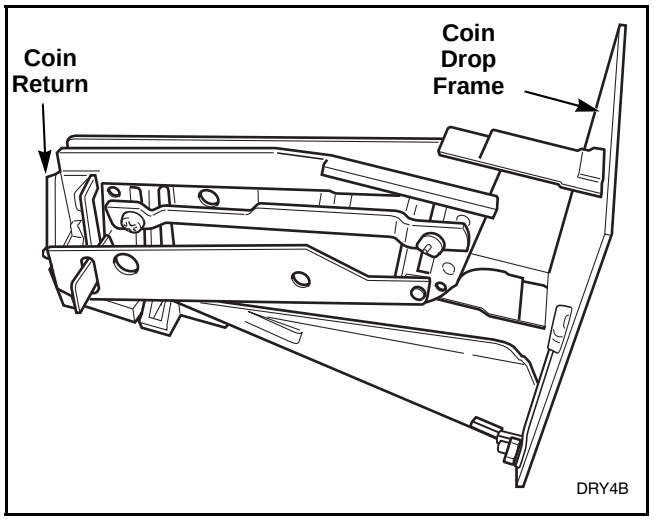

Figure 3

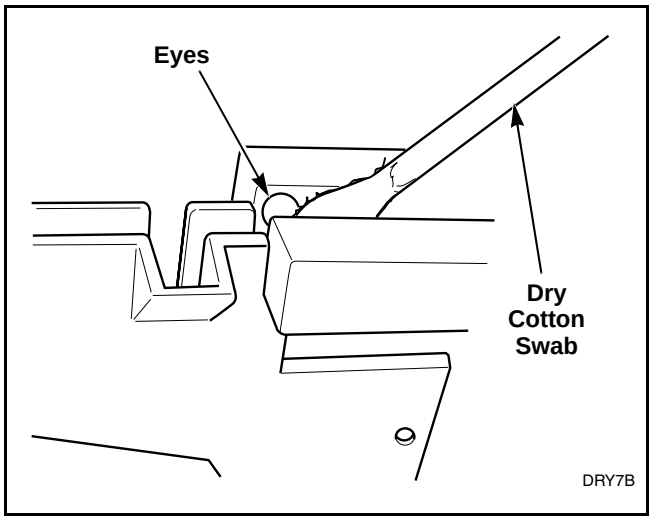

Figure 6

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Section 5
Troubleshooting – B-Control Coin Models

WARNING

To reduce the risk of electrical shock, fire, explosion, serious injury or death:
- **Disconnect electrical power to the washer-extractor before servicing it.**
- **Close the gas shut-off valve to the washer-extractor (when applicable) before servicing it.**
- **Never start the washer-extractor with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer-extractor is properly grounded.**

W461R1

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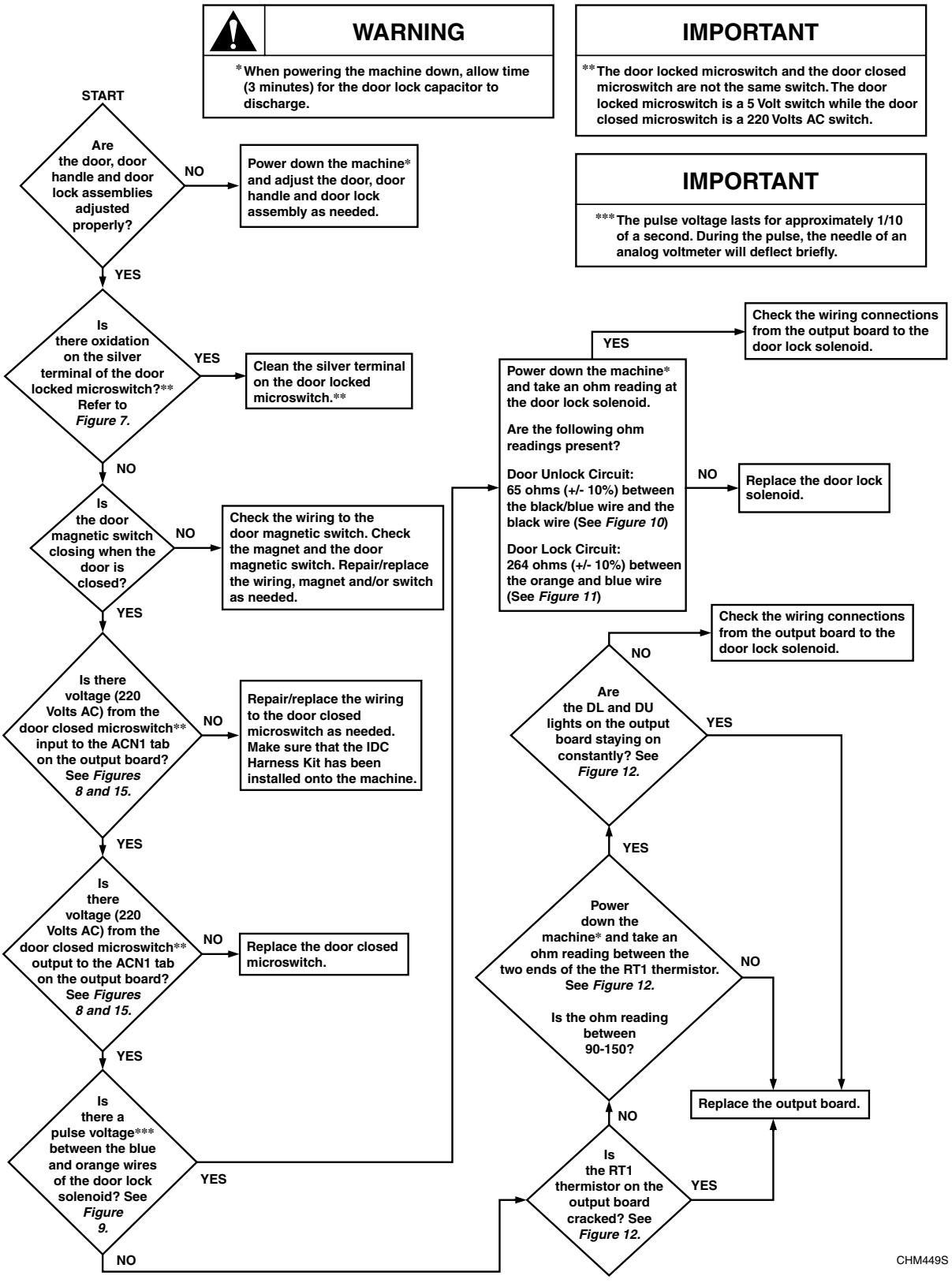
11. The Display Shows “CANt/LOC” or “SHUT/DOOR”: Flowchart 1

Before beginning the troubleshooting, be sure that the IDC Harness Kit (Part No. F200189300 [all voltage models except C-voltage] and F200189301 [C-voltage models]) has been installed onto the machine.
NOTE: If, after troubleshooting with this flowchart, the display still reads “CANt/LOC” or “SHUT/DOOR”, go to “The Display Shows “CANt/LOC” or “SHUT/DOOR”: Flowchart 2”


WARNING
*When powering the machine down, allow time (3 minutes) for the door lock capacitor to discharge.
IMPORTANT
**The door locked microswitch and the door closed microswitch are not the same switch. The door locked microswitch is a 5 Volt switch while the door closed microswitch is a 220 Volts AC switch.
IMPORTANT
***The pulse voltage lasts for approximately 1/10 of a second. During the pulse, the needle of an analog voltmeter will deflect briefly.
START
Are the door, door handle and door lock assemblies adjusted properly?
NO
Power down the machine* and adjust the door, door handle and door lock assembly as needed.
YES
Is there oxidation on the silver terminal of the door locked microswitch?** Refer to Figure 7.
YES
Clean the silver terminal on the door locked microswitch.**
NO
Is the door magnetic switch closing when the door is closed?
NO
Check the wiring to the door magnetic switch. Check the magnet and the door magnetic switch. Repair/replace the wiring, magnet and/or switch as needed.
YES
Is there voltage (220 Volts AC) from the door closed microswitch** input to the ACN1 tab on the output board? See Figures 8 and 15.
NO
Repair/replace the wiring to the door closed microswitch as needed. Make sure that the IDC Harness Kit has been installed onto the machine.
YES
Is there voltage (220 Volts AC) from the door closed microswitch** output to the ACN1 tab on the output board? See Figures 8 and 15.
NO
Replace the door closed microswitch.
YES
Is there a pulse voltage*** between the blue and orange wires of the door lock solenoid? See Figure 9.
YES
NO
Power down the machine* and take an ohm reading at the door lock solenoid.
Are the following ohm readings present?
Door Unlock Circuit: 65 ohms (+/- 10%) between the black/blue wire and the black wire (See Figure 10)
Door Lock Circuit: 264 ohms (+/- 10%) between the orange and blue wire (See Figure 11)
NO
Replace the door lock solenoid.
YES
Check the wiring connections from the output board to the door lock solenoid.
Are the DL and DU lights on the output board staying on constantly? See Figure 12.
NO
Check the wiring connections from the output board to the door lock solenoid.
YES
Power down the machine* and take an ohm reading between the two ends of the the RT1 thermistor. See Figure 12.
Is the ohm reading between 90-150?
YES
NO
Replace the output board.
Is the RT1 thermistor on the output board cracked? See Figure 12.
NO
YES
CHM449S

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The Display Shows “CANt/LOC” or “SHUT/DOOR”: Flowchart 1 (cont.)

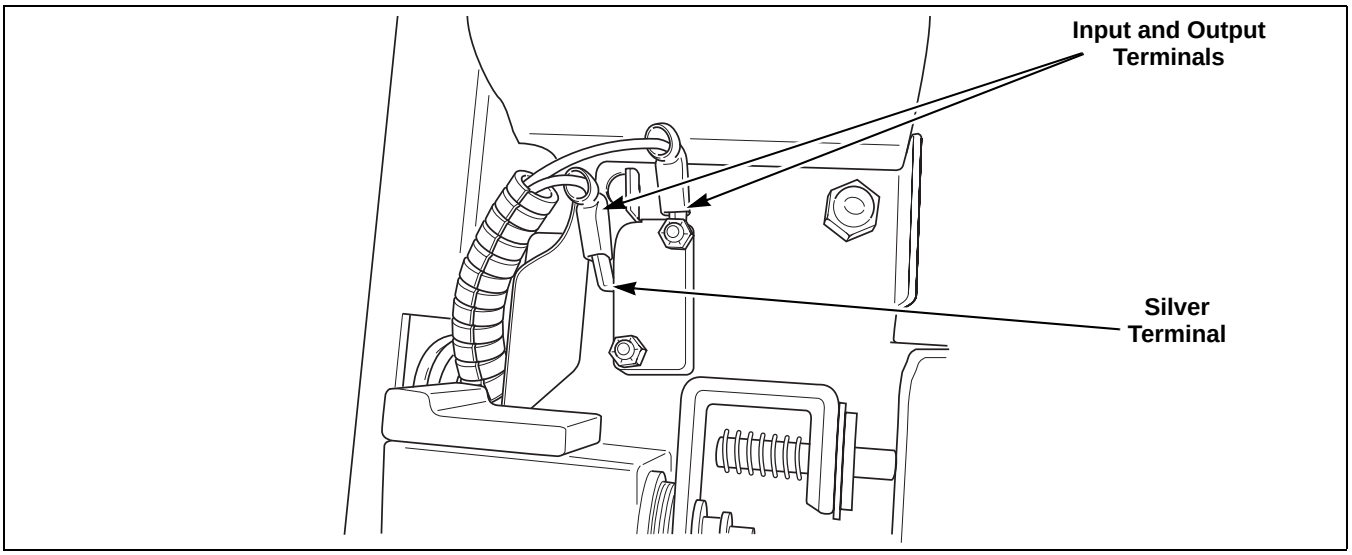

Figure 7 – Door Locked Microswitch CHM310S

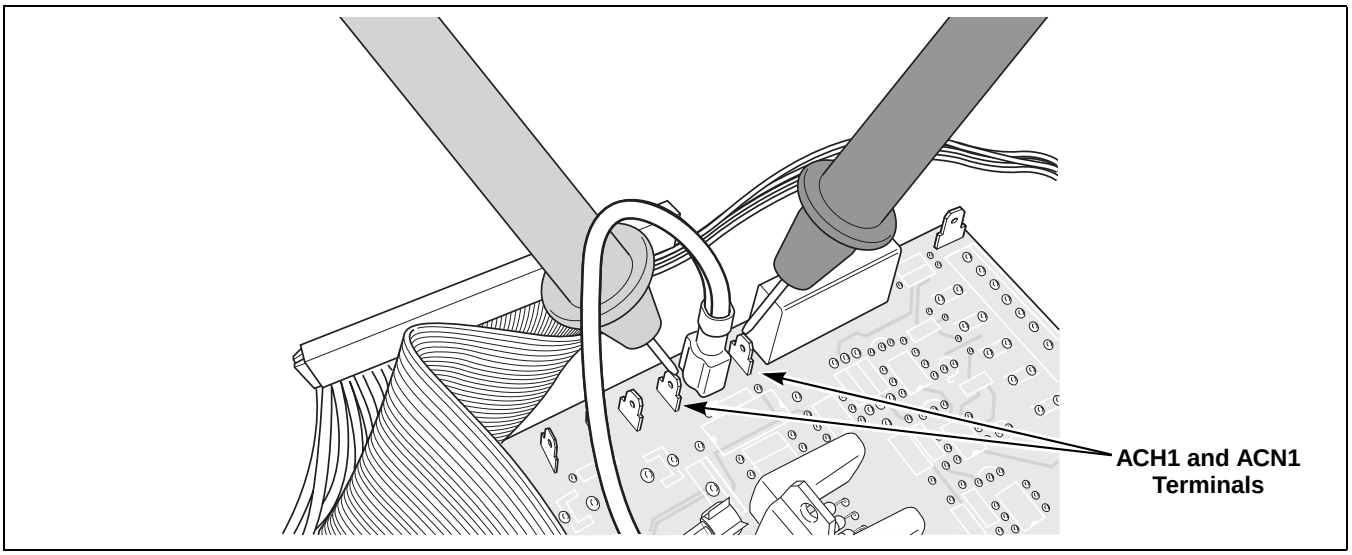

Figure 8 CHM445S

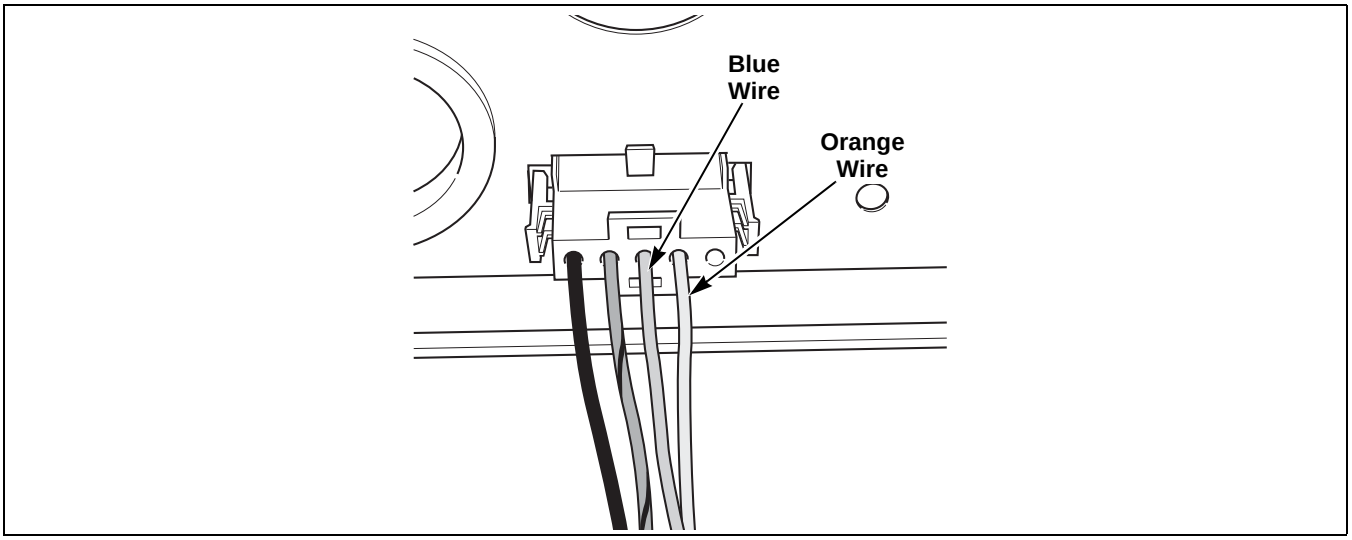

Figure 9 CHM312S

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The Display Shows “CANt/LOC” or “SHUT/DOOR”: Flowchart 1 (cont.)

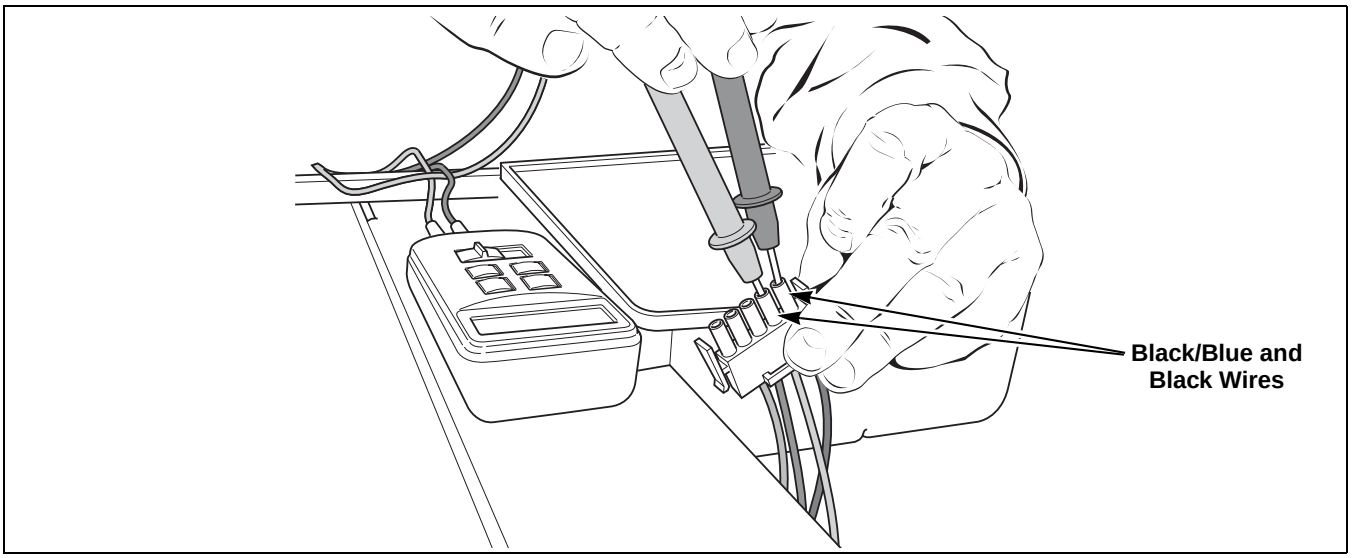

Figure 10 CHM313S

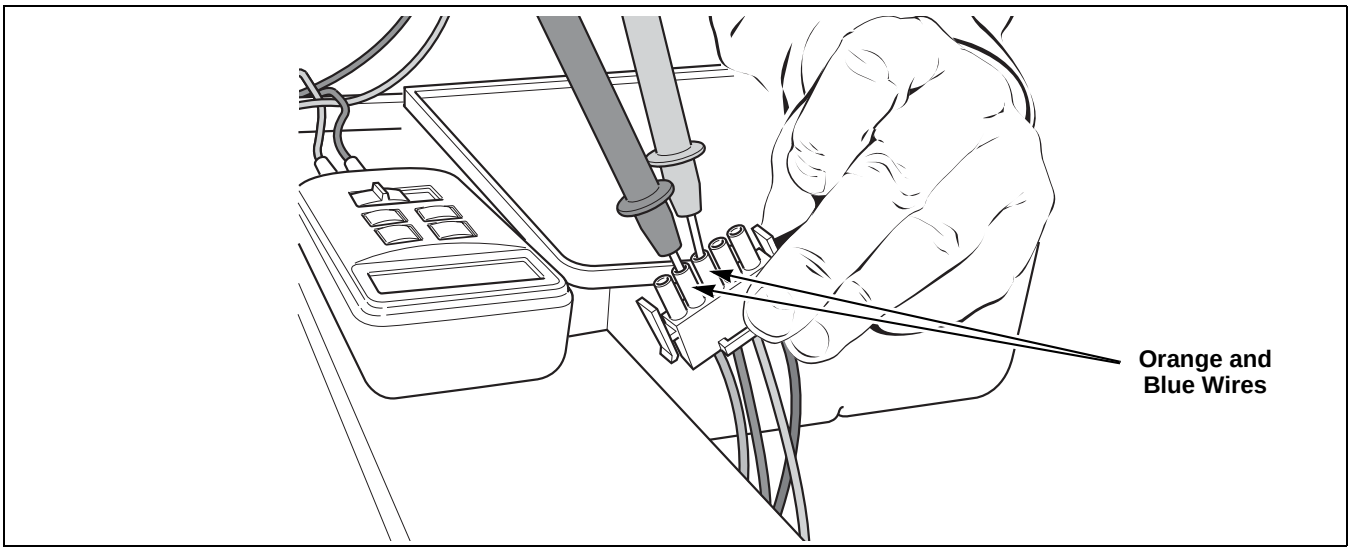

Figure 11 CHM314S

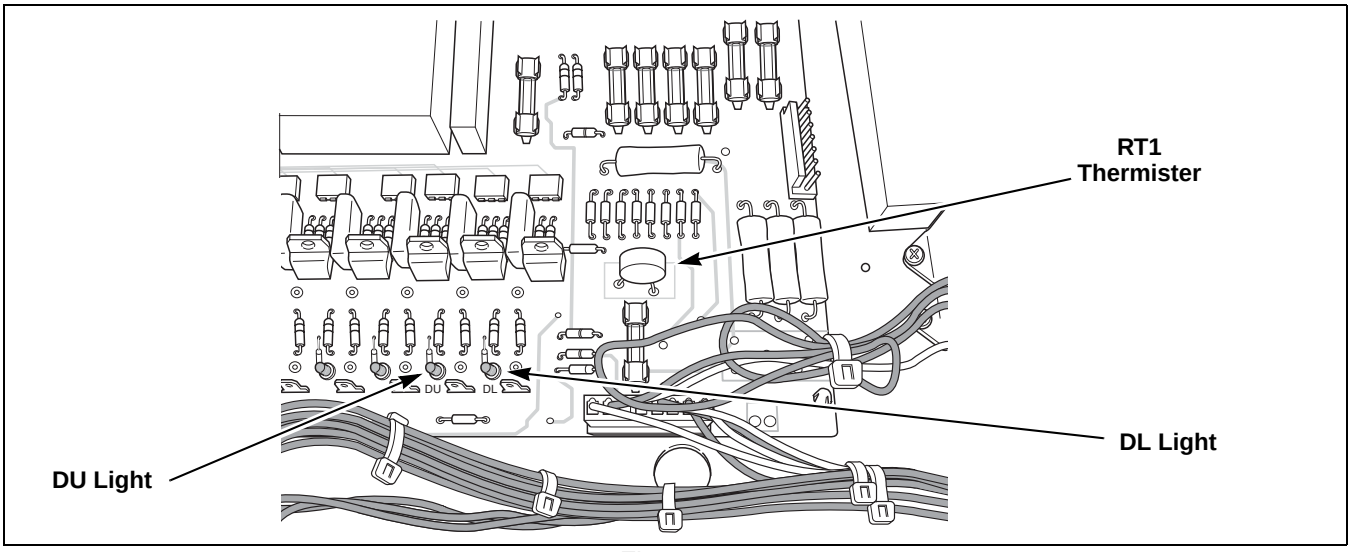

Figure 12 CHM446S

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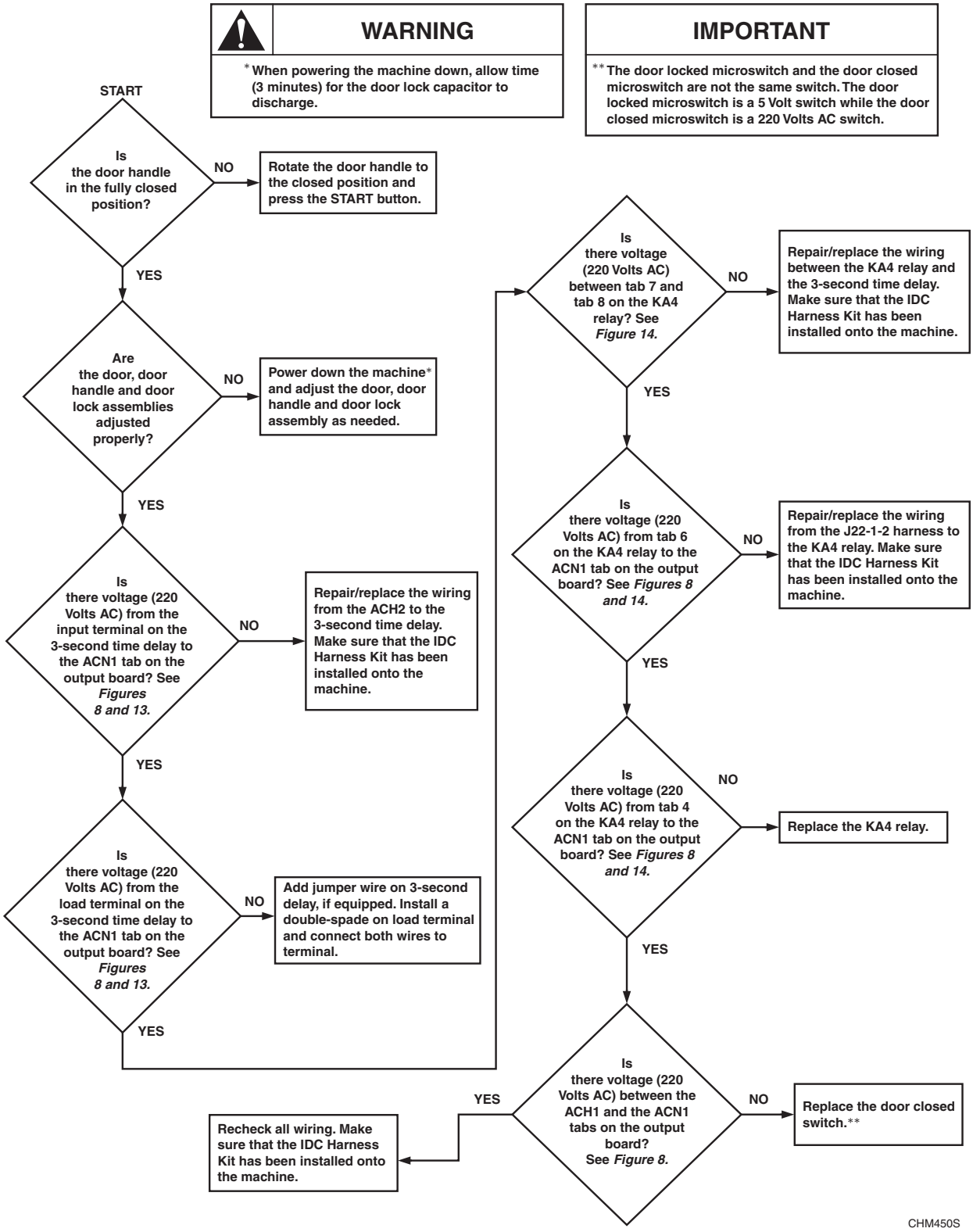
12. The Display Shows “CANt/LOC” or “SHUT/DOOR”: Flowchart 2

Before beginning the troubleshooting, be sure that the IDC Harness Kit (Part No. F200189300 [all voltage models except C-voltage] and F200189301 [C-voltage models]) has been installed onto the machine.
NOTE: If, after troubleshooting with this flowchart, the display still reads “CANt/LOC” or “SHUT/DOOR”, go to “The Display Shows “CANt/LOC” or “SHUT/DOOR”: Flowchart 3”


WARNING
*When powering the machine down, allow time (3 minutes) for the door lock capacitor to discharge.
IMPORTANT
**The door locked microswitch and the door closed microswitch are not the same switch. The door locked microswitch is a 5 Volt switch while the door closed microswitch is a 220 Volts AC switch.
START
Is the door handle in the fully closed position?
NO
Rotate the door handle to the closed position and press the START button.
YES
Are the door, door handle and door lock assemblies adjusted properly?
NO
Power down the machine* and adjust the door, door handle and door lock assembly as needed.
YES
Is there voltage (220 Volts AC) from the input terminal on the 3-second time delay to the ACN1 tab on the output board? See Figures 8 and 13.
NO
Repair/replace the wiring from the ACH2 to the 3-second time delay. Make sure that the IDC Harness Kit has been installed onto the machine.
YES
Is there voltage (220 Volts AC) from the load terminal on the 3-second time delay to the ACN1 tab on the output board? See Figures 8 and 13.
NO
Add jumper wire on 3-second delay, if equipped. Install a double-spade on load terminal and connect both wires to terminal.
YES
Is there voltage (220 Volts AC) between tab 7 and tab 8 on the KA4 relay? See Figure 14.
NO
Repair/replace the wiring between the KA4 relay and the 3-second time delay. Make sure that the IDC Harness Kit has been installed onto the machine.
YES
Is there voltage (220 Volts AC) from tab 6 on the KA4 relay to the ACN1 tab on the output board? See Figures 8 and 14.
NO
Repair/replace the wiring from the J22-1-2 harness to the KA4 relay. Make sure that the IDC Harness Kit has been installed onto the machine.
YES
Is there voltage (220 Volts AC) from tab 4 on the KA4 relay to the ACN1 tab on the output board? See Figures 8 and 14.
NO
Replace the KA4 relay.
YES
Is there voltage (220 Volts AC) between the ACH1 and the ACN1 tabs on the output board? See Figure 8.
NO
Replace the door closed switch.**
YES
Recheck all wiring. Make sure that the IDC Harness Kit has been installed onto the machine.
CHM450S

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The Display Shows “CANt/LOC” or “SHUT/DOOR”: Flowchart 2 (cont.)

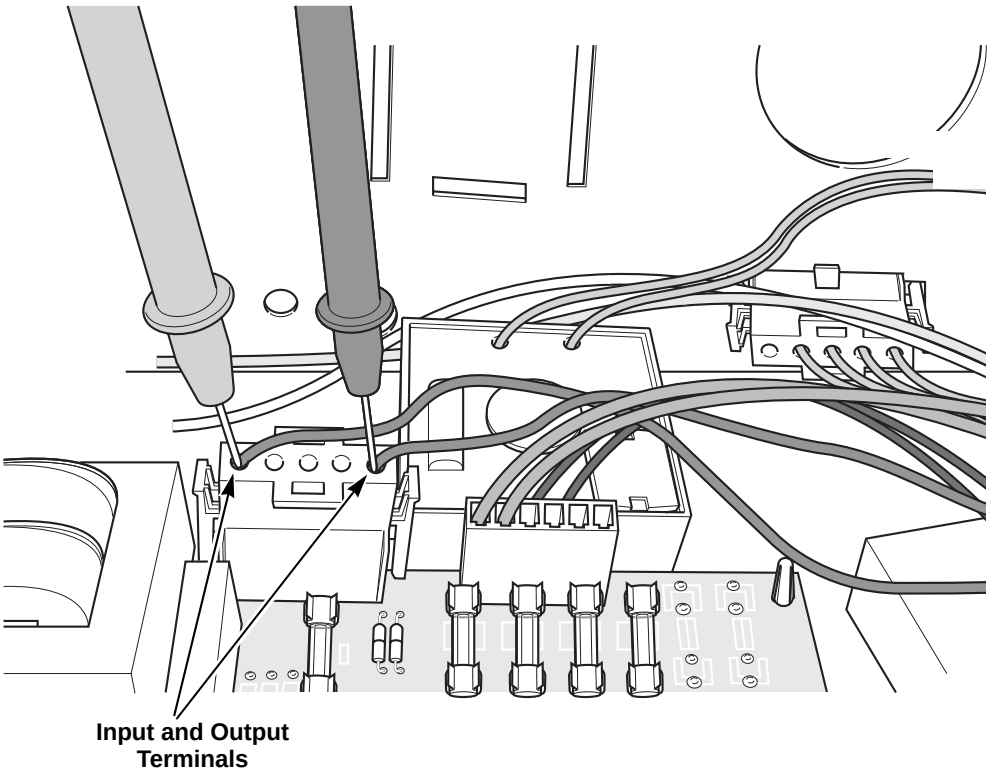

Figure 13 CHM447S

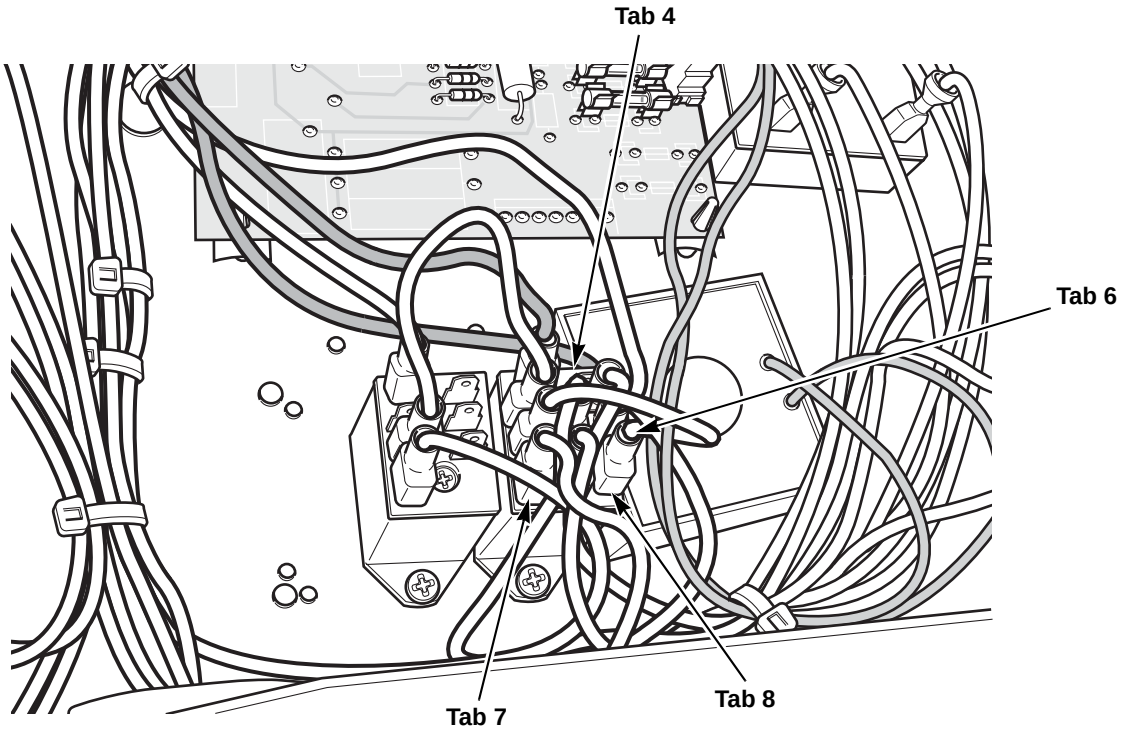

Figure 14 CHM317S

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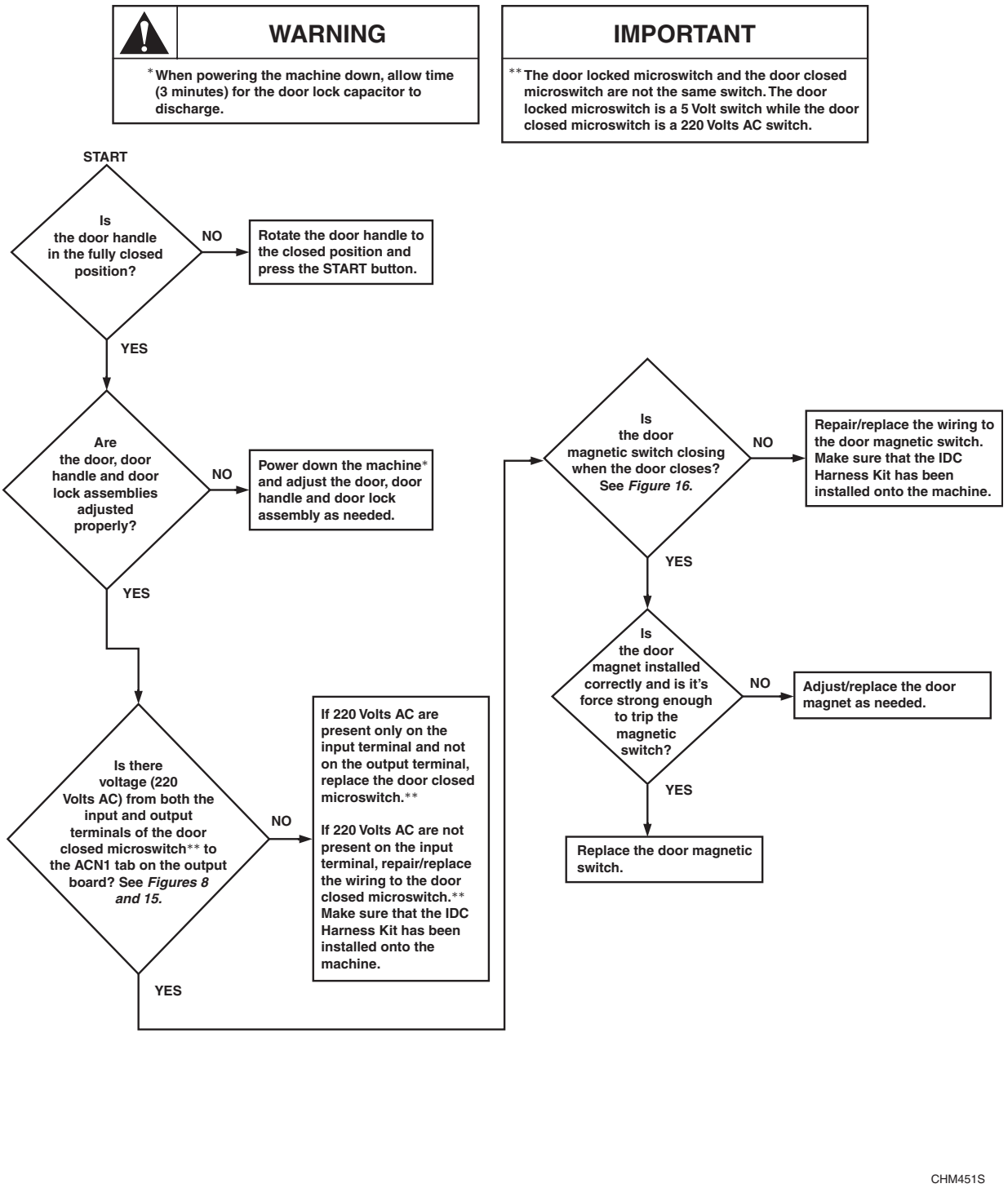
13. The Display Shows “CANt/LOC” or “SHUT/DOOR”: Flowchart 3

Before beginning the troubleshooting, be sure that the IDC Harness Kit (Part No. F200189300 [all voltage models except C-voltage] and F200189301 [C-voltage models]) has been installed onto the machine.


WARNING
* When powering the machine down, allow time (3 minutes) for the door lock capacitor to discharge.
IMPORTANT
** The door locked microswitch and the door closed microswitch are not the same switch. The door locked microswitch is a 5 Volt switch while the door closed microswitch is a 220 Volts AC switch.
START
Is the door handle in the fully closed position?
NO
Rotate the door handle to the closed position and press the START button.
YES
Are the door, door handle and door lock assemblies adjusted properly?
NO
Power down the machine* and adjust the door, door handle and door lock assembly as needed.
YES
Is there voltage (220 Volts AC) from both the input and output terminals of the door closed microswitch** to the ACN1 tab on the output board? See Figures 8 and 15.
NO
If 220 Volts AC are present only on the input terminal and not on the output terminal, replace the door closed microswitch.**
If 220 Volts AC are not present on the input terminal, repair/replace the wiring to the door closed microswitch.** Make sure that the IDC Harness Kit has been installed onto the machine.
YES
Is the door magnetic switch closing when the door closes? See Figure 16.
NO
Repair/replace the wiring to the door magnetic switch. Make sure that the IDC Harness Kit has been installed onto the machine.
YES
Is the door magnet installed correctly and is it’s force strong enough to trip the magnetic switch?
NO
Adjust/replace the door magnet as needed.
YES
Replace the door magnetic switch.

CHM451S

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The Display Shows “CANt/LOC” or “SHUT/DOOR”: Flowchart 3 (cont.)

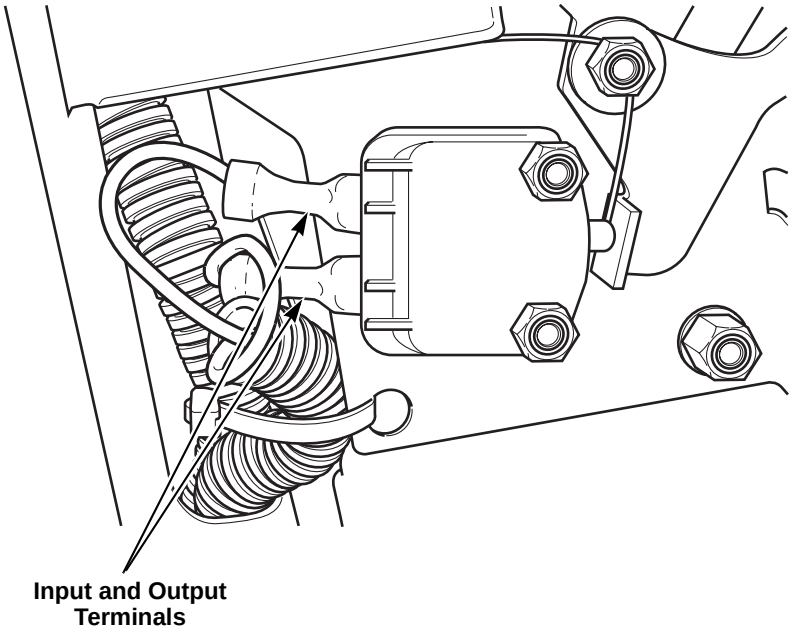

Figure 15 – Door Closed Microswitch CHM318S

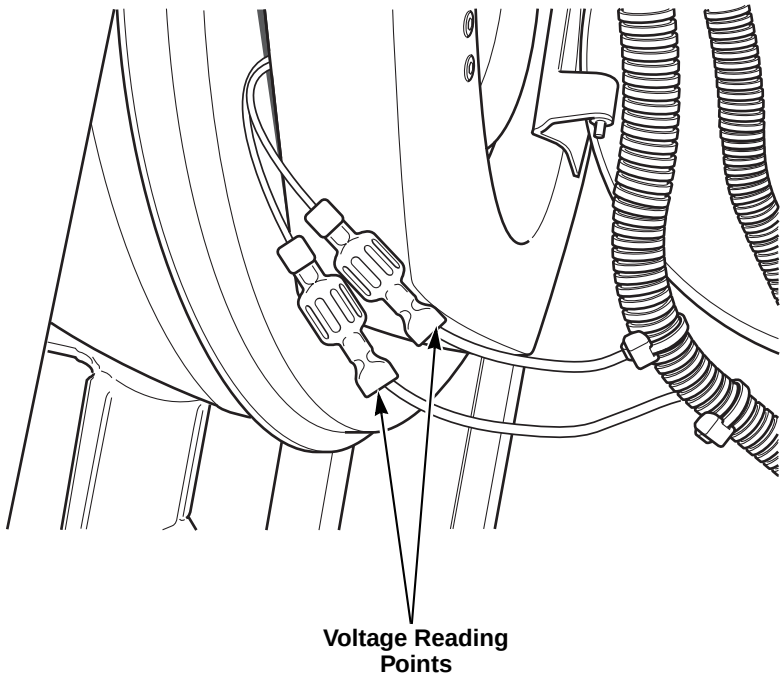

Figure 16 – Wires to the Door Magnetic Switch CHM319S

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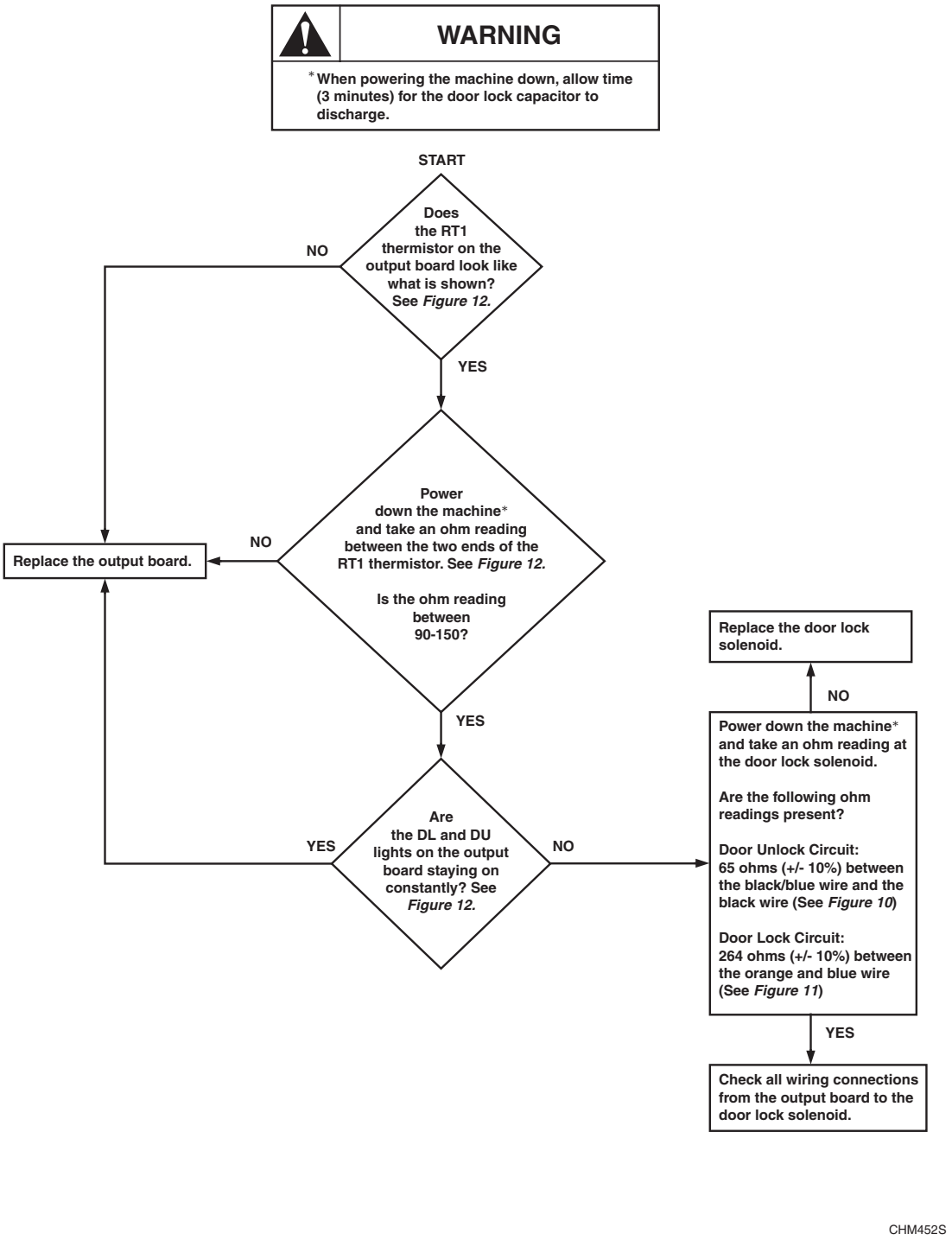
14. At the End of a Cycle, The Display Shows “CANt/OPEn”

Before beginning the troubleshooting, be sure that the IDC Harness Kit (Part No. F200189300 [all voltage models except C-voltage] and F200189301 [C-voltage models]) has been installed onto the machine.


WARNING
*When powering the machine down, allow time (3 minutes) for the door lock capacitor to discharge.
START
Does the RT1 thermistor on the output board look like what is shown? See Figure 12.
NO
YES
Power down the machine* and take an ohm reading between the two ends of the RT1 thermistor. See Figure 12.
Is the ohm reading between 90-150?
NO
Replace the output board.
YES
Are the DL and DU lights on the output board staying on constantly? See Figure 12.
YES
NO
Power down the machine* and take an ohm reading at the door lock solenoid.
Are the following ohm readings present?
Door Unlock Circuit: 65 ohms (+/- 10%) between the black/blue wire and the black wire (See Figure 10)
Door Lock Circuit: 264 ohms (+/- 10%) between the orange and blue wire (See Figure 11)
NO
Replace the door lock solenoid.
YES
Check all wiring connections from the output board to the door lock solenoid.
CHM452S

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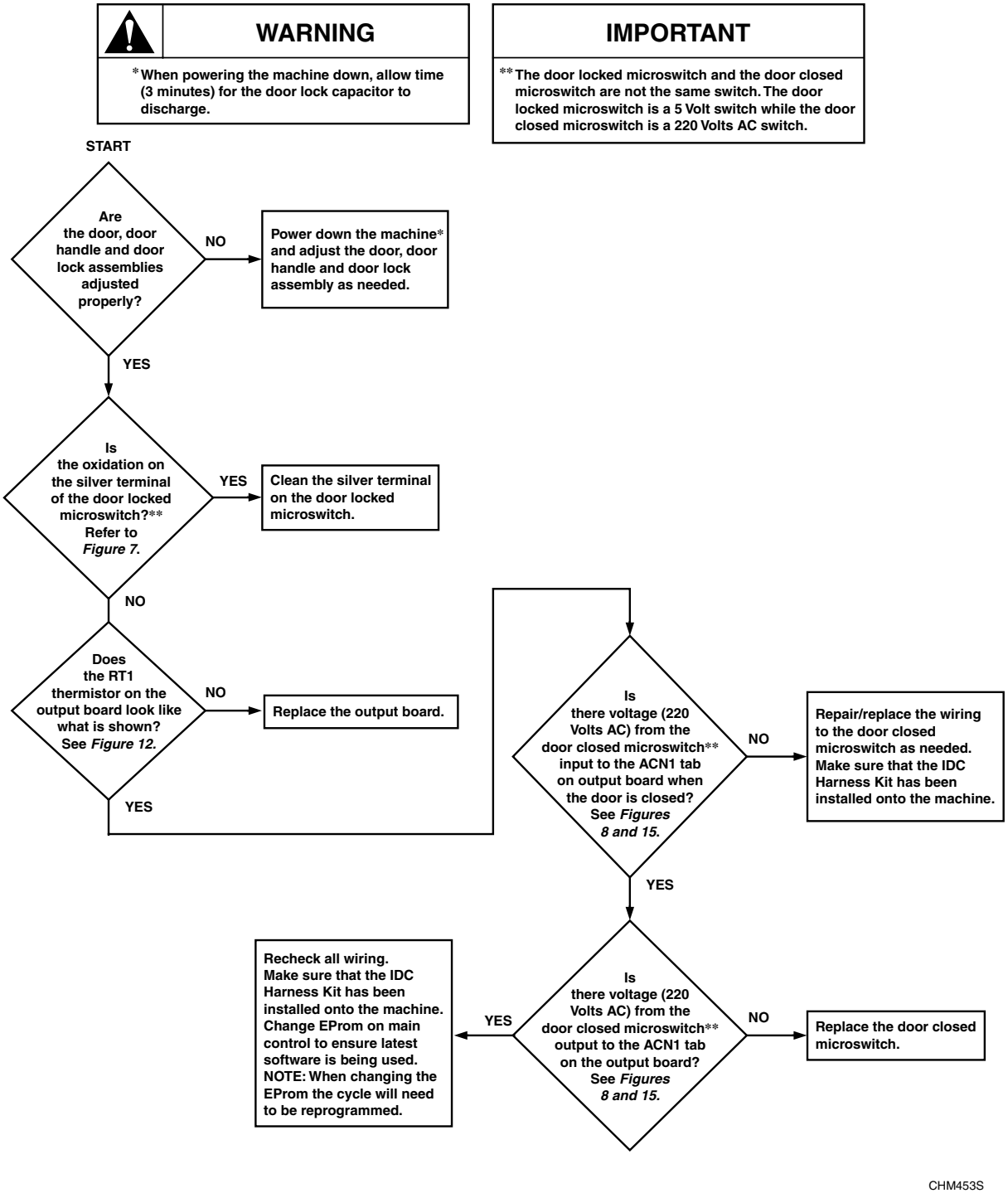
15. In Mid-Cycle, The Display Shows “01”, the Door Unlocks and the Display Shows “DONE”

Before beginning the troubleshooting, be sure that the IDC Harness Kit (Part No. F200189300 [all voltage models except C-voltage] and F200189301 [C-voltage models]) has been installed onto the machine.


WARNING
*When powering the machine down, allow time (3 minutes) for the door lock capacitor to discharge.
IMPORTANT
**The door locked microswitch and the door closed microswitch are not the same switch. The door locked microswitch is a 5 Volt switch while the door closed microswitch is a 220 Volts AC switch.
START
Are the door, door handle and door lock assemblies adjusted properly?
NO
Power down the machine* and adjust the door, door handle and door lock assembly as needed.
YES
Is the oxidation on the silver terminal of the door locked microswitch?** Refer to Figure 7.
YES
Clean the silver terminal on the door locked microswitch.
NO
Does the RT1 thermistor on the output board look like what is shown? See Figure 12.
NO
Replace the output board.
YES
Is there voltage (220 Volts AC) from the door closed microswitch** input to the ACN1 tab on output board when the door is closed? See Figures 8 and 15.
NO
Repair/replace the wiring to the door closed microswitch as needed. Make sure that the IDC Harness Kit has been installed onto the machine.
YES
Is there voltage (220 Volts AC) from the door closed microswitch** output to the ACN1 tab on the output board? See Figures 8 and 15.
NO
Replace the door closed microswitch.
YES
Recheck all wiring. Make sure that the IDC Harness Kit has been installed onto the machine. Change EProm on main control to ensure latest software is being used. NOTE: When changing the EProm the cycle will need to be reprogrammed.

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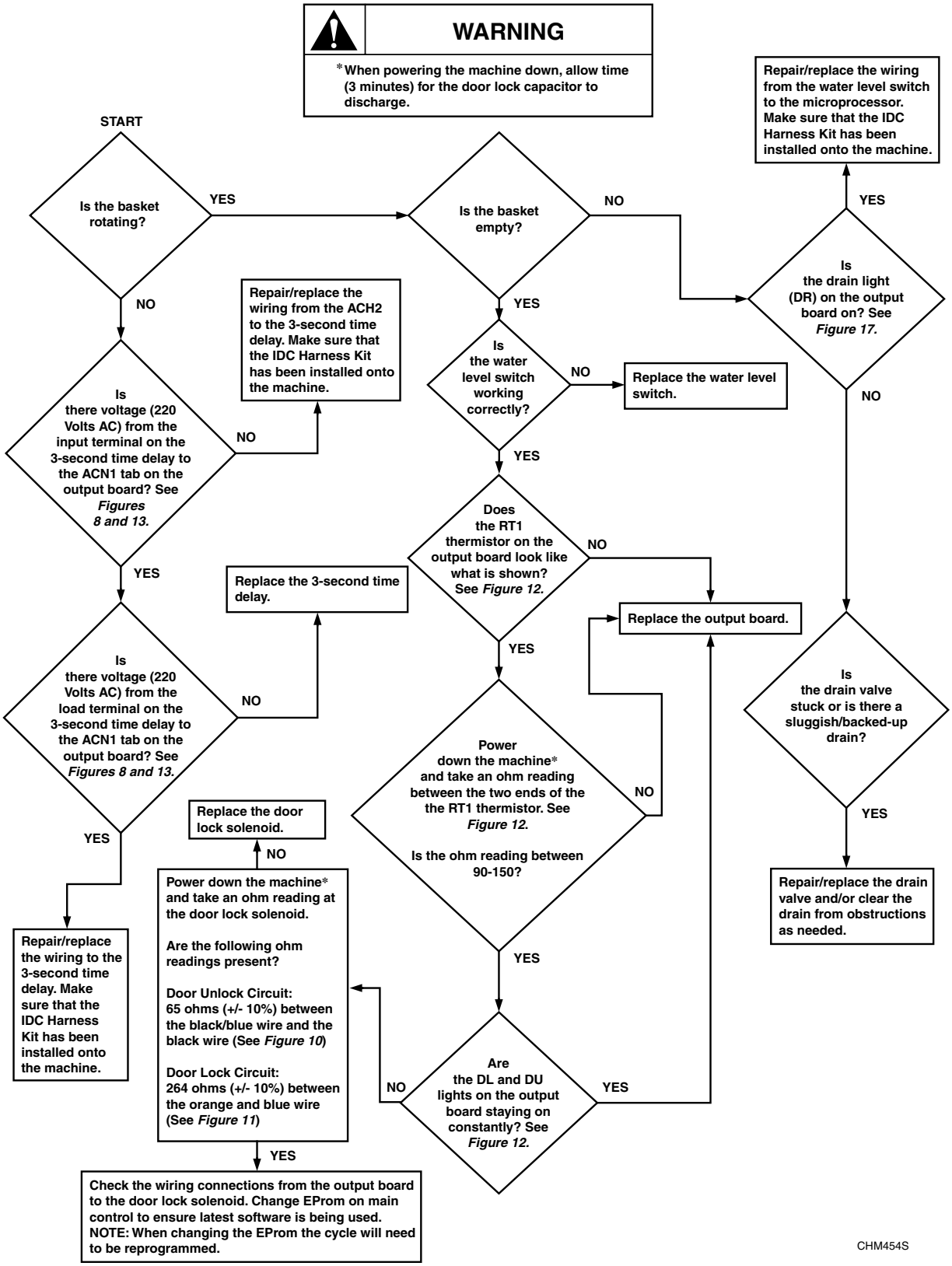
16. The Control Stops with “01” on the Display

Before beginning the troubleshooting, be sure that the IDC Harness Kit (Part No. F200189300 [all voltage models except C-voltage] and F200189301 [C-voltage models]) has been installed onto the machine.


WARNING
*When powering the machine down, allow time (3 minutes) for the door lock capacitor to discharge.
START
Is the basket rotating?
YES
NO
Is the basket empty?
NO
YES
Repair/replace the wiring from the water level switch to the microprocessor. Make sure that the IDC Harness Kit has been installed onto the machine.
YES
Is the drain light (DR) on the output board on? See Figure 17.
NO
Repair/replace the wiring from the ACH2 to the 3-second time delay. Make sure that the IDC Harness Kit has been installed onto the machine.
Is the water level switch working correctly?
NO
Replace the water level switch.
YES
Is there voltage (220 Volts AC) from the input terminal on the 3-second time delay to the ACN1 tab on the output board? See Figures 8 and 13.
NO
YES
Does the RT1 thermistor on the output board look like what is shown? See Figure 12.
NO
Replace the output board.
YES
Replace the 3-second time delay.
Is there voltage (220 Volts AC) from the load terminal on the 3-second time delay to the ACN1 tab on the output board? See Figures 8 and 13.
NO
YES
Power down the machine* and take an ohm reading between the two ends of the the RT1 thermistor. See Figure 12.
Is the ohm reading between 90-150?
NO
YES
Is the drain valve stuck or is there a sluggish/backed-up drain?
YES
Repair/replace the drain valve and/or clear the drain from obstructions as needed.
Replace the door lock solenoid.
NO
Power down the machine* and take an ohm reading at the door lock solenoid.
Are the following ohm readings present?
Door Unlock Circuit: 65 ohms (+/- 10%) between the black/blue wire and the black wire (See Figure 10)
Door Lock Circuit: 264 ohms (+/- 10%) between the orange and blue wire (See Figure 11)
YES
Repair/replace the wiring to the 3-second time delay. Make sure that the IDC Harness Kit has been installed onto the machine.
Are the DL and DU lights on the output board staying on constantly? See Figure 12.
NO
YES
Check the wiring connections from the output board to the door lock solenoid. Change EProm on main control to ensure latest software is being used. NOTE: When changing the EProm the cycle will need to be reprogrammed.
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The Control Stops with “01” on the Display (cont.)

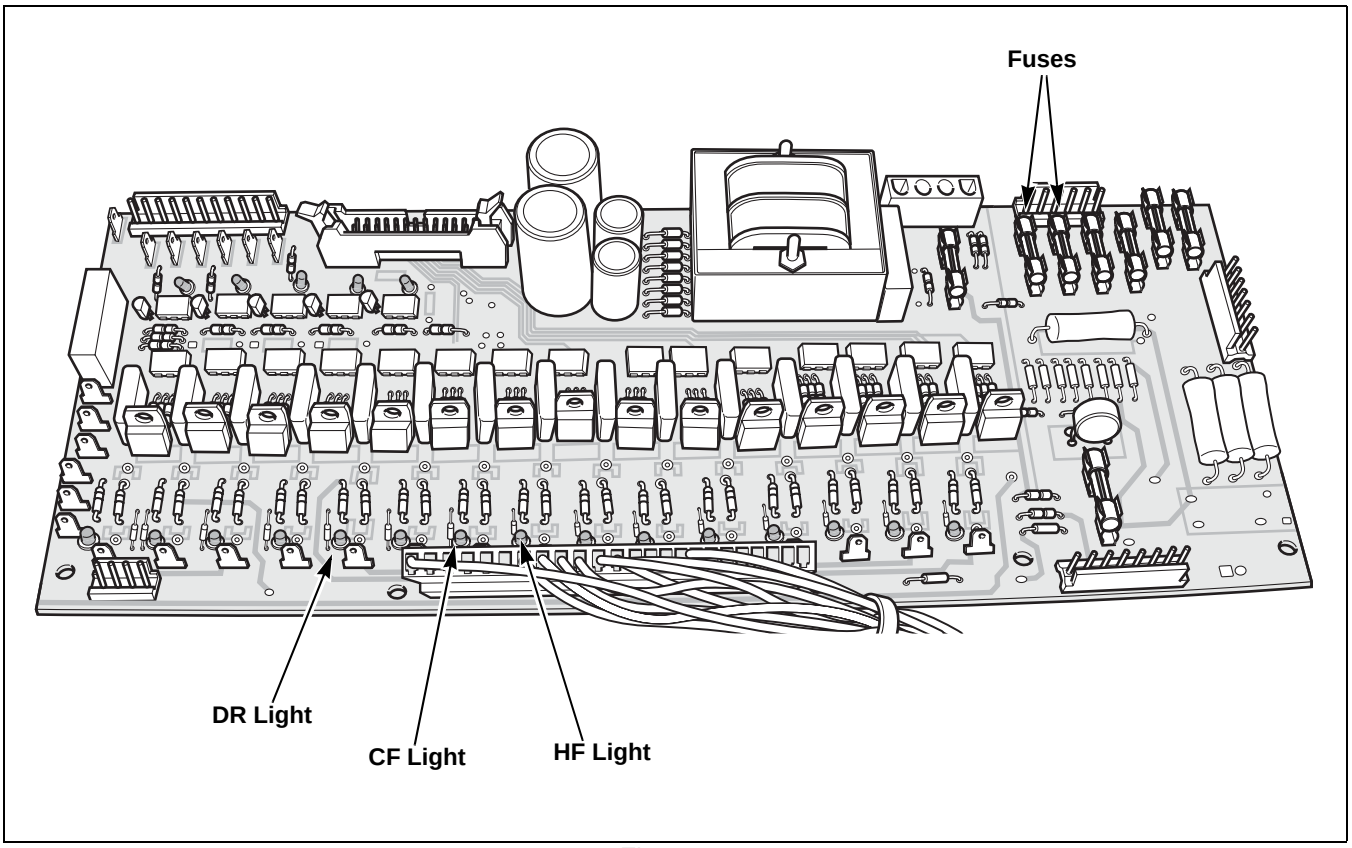

Figure 17 CHM448S

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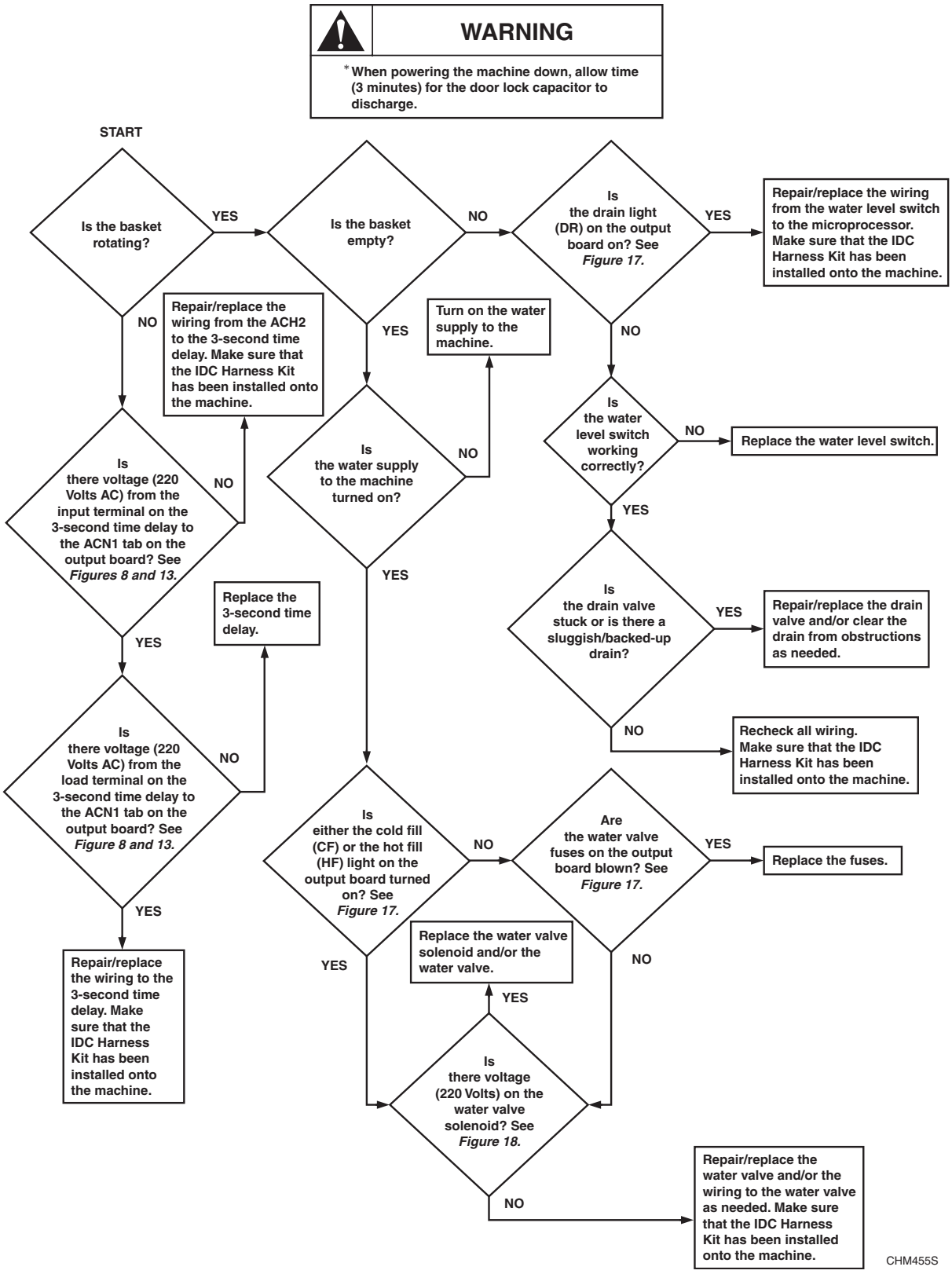
17. The Control Stops in Mid-Cycle and Will Not Advance

Before beginning the troubleshooting, be sure that the IDC Harness Kit (Part No. F200189300 [all voltage models except C-voltage] and F200189301 [C-voltage models]) has been installed onto the machine.


WARNING
*When powering the machine down, allow time (3 minutes) for the door lock capacitor to discharge.
START
Is the basket rotating?
YES
Is the basket empty?
NO
Is the drain light (DR) on the output board on? See Figure 17.
YES
Repair/replace the wiring from the water level switch to the microprocessor. Make sure that the IDC Harness Kit has been installed onto the machine.
NO
Repair/replace the wiring from the ACH2 to the 3-second time delay. Make sure that the IDC Harness Kit has been installed onto the machine.
YES
Turn on the water supply to the machine.
NO
Is the water level switch working correctly?
NO
Replace the water level switch.
Is there voltage (220 Volts AC) from the input terminal on the 3-second time delay to the ACN1 tab on the output board? See Figures 8 and 13.
NO
Is the water supply to the machine turned on?
NO
YES
Is the drain valve stuck or is there a sluggish/backed-up drain?
YES
Repair/replace the drain valve and/or clear the drain from obstructions as needed.
YES
Replace the 3-second time delay.
NO
Recheck all wiring. Make sure that the IDC Harness Kit has been installed onto the machine.
Is there voltage (220 Volts AC) from the load terminal on the 3-second time delay to the ACN1 tab on the output board? See Figure 8 and 13.
NO
YES
Is either the cold fill (CF) or the hot fill (HF) light on the output board turned on? See Figure 17.
NO
Are the water valve fuses on the output board blown? See Figure 17.
YES
Replace the fuses.
YES
Repair/replace the wiring to the 3-second time delay. Make sure that the IDC Harness Kit has been installed onto the machine.
YES
Replace the water valve solenoid and/or the water valve.
NO
YES
Is there voltage (220 Volts) on the water valve solenoid? See Figure 18.
NO
Repair/replace the water valve and/or the wiring to the water valve as needed. Make sure that the IDC Harness Kit has been installed onto the machine.
CHM455S

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The Control Stops in Mid-Cycle and Will Not Advance (cont.)

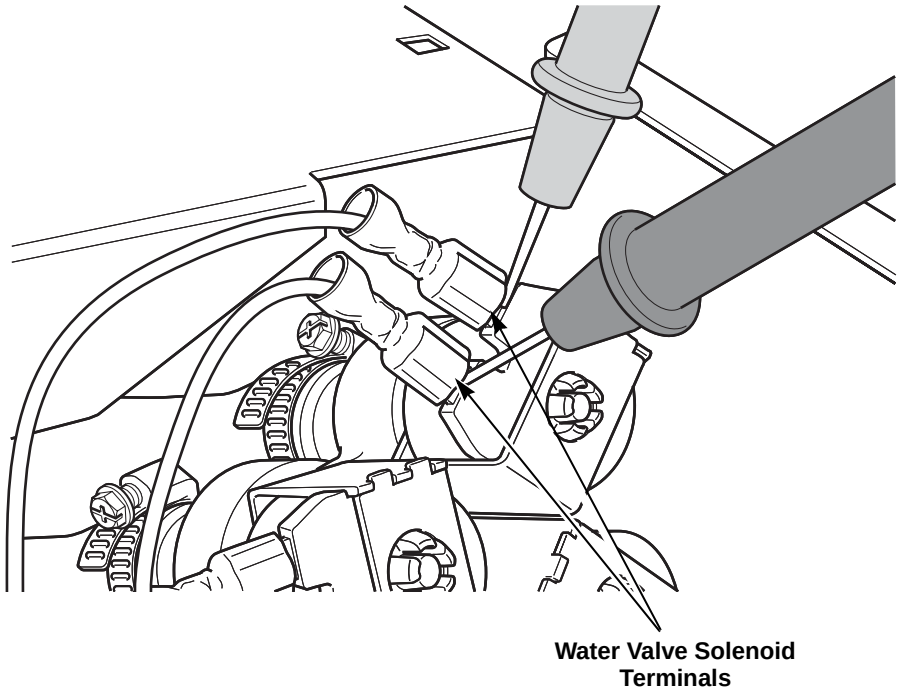

Figure 18 CHM321S

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